



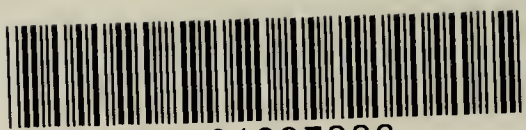
DEPARTMENT OF HEALTH AND MEDICAL SERVICES

ANNUAL REPORT

FOR THE YEAR ENDED 31st DECEMBER, 1980

Division
of
Public
Health

Western Australia



22501397226

R E P O R T O F T H E
C O M M I S S I O N E R O F P U B L I C H E A L T H
F O R T H E Y E A R 1 9 8 0



JAMES COLUMBA McNULTY,
J.P., M.B., B.Ch., B.A.O., D.I.H., D.P.H.,
F.R.A.C.M.A., M. (F.O.M.) R.C.P. (LOND.).
Commissioner

Presented to both Houses of Parliament

WELLCOME INSTITUTE	
LIBRARY	
Coll.	Wellcome
Call	+
No.	11/11/11
	WAGE
	WAGE
	WAGE

1980

THE HONOURABLE R.L. YOUNG

MINISTER FOR HEALTH

Sir,

I have the honour to submit the Report of the Public Health Department for the year 1980. The various reports from the Directors and Heads of Branches and from certain statutory committees provide a comprehensive and detailed account of the activities of the Department and reflect considerable effort in the promotion of health, the prevention of disease and the effective administration of legislation entrusted to this Department.

My thanks are due to the very loyal and conscientious staff at all levels throughout Western Australia.

JAMES COLUMBA McNULTY,
J.P., M.B., B.Ch., B.A.O., D.I.H., D.P.H.,
F.R.A.C.M.A., M.(F.O.M.) R.C.P. (LOND.).

COMMISSIONER OF PUBLIC HEALTH



Digitized by the Internet Archive
in 2019 with funding from
Wellcome Library

<https://archive.org/details/b31480652>

CONTENTS

Supplementary Reports—

Appendix	Page
I—Introduction	1
II—Report by Dr. V. Blackman, Director, State Health Laboratory Services.....	5
III—Report by Dr. J.T. Cassidy, Director, Chest & Tuberculosis Services.....	59
IV—Report by Dr. R. Allen, Medical Officer-in-Charge, Epidemiology and Special Services.....	83
V—Report by Dr. M.M. Gollow, Director, Venereal Disease Control Branch.....	87
VI—Report by Dr. C.F. Quadros, Director, Community and Child Health Services.....	97
VII—Report by Dr. R.M. Spargo, Regional Director, Health, Kimberley Health Region.....	175
VIII—Report by Dr. L.J. Holman, Deputy Commissioner of Public Health, Community Health Programme.....	207
IX—Report by Mr. W.M. Griffiths, Principal Pharmacist, Pharmaceutical Services Branch.....	223
X—Report by Mr. J.L. Prichard, Director, Dental Health Services.....	229
XI—Report by Miss E.L. Bohan, Principal Director of Nursing, Nursing Administration Section.....	239
XII—Report by Dr. F. Heyworth, Director, Occupational Health, Clean Air and Noise Abatement Branch.....	249
XIII—Report by Mr. B.E. King, Physicist-in-Charge, Physics Division, State X-Ray Laboratory.....	281
XIV—Report by Dr. K.J.M. Carruthers, Assistant Commissioner of Public Health, Education Services Branch.....	289
XV—Report by Mr. J.F. Slattery, Chief Health Surveyor, Health Surveying Branch.....	303
XVI—Report by Mr. J.R. Edinger, Food and Nutrition Officer, Food and Nutrition Section.....	335

	Page
XVII-Report by Dr. M.M. Lugg, Health Statistician, Statistics Branch.....	341
XVIII-Leprosarium-Admissions and Discharges.....	347
XIX-Incidence and Mortality of Notifiable Diseases.....	348
XX-Anaesthetic Mortality Committee Report.....	349
XXI-Congenital Malformations Register Report.....	351
XXII-Revenue and Expenditure.....	357

LEGISLATION

Legislative amendments undertaken for 1980 are set out hereunder:-

ACTS

Pharmacy Act Amendment Act 1980 - No. 93 of 1980

An Act to amend the principal Act relating to advertising by Chemists.

Chiropractors Act Amendment Act 1980 - No. 38 of 1980

To amend the principal Act relating to annual reports to the Hon. Minister for Health, rules of the Chiropractors Board, and to allow appeals against Board decisions.

Occupational Therapists Act Amendment Act 1980 - No. 89 of 1980 (to be proclaimed)

To incorporate disciplinary powers previously provided in the Rules, into the Act. Determining method of filling vacancies on the Board and terms of office. Allowing the Governor power to make regulations including the matter of prescribing an annual practising license to replace the annual registration fee.

Nurses Act Amendment Act 1980 - No. 87 of 1980 (To be proclaimed)

The amendments to this Act are aimed at updating the Act to reflect changes in thinking in relation to nurses and their registration and education. The composition of the Board was changed. There are now eighteen members (previously seventeen) and the number of doctors is reduced from four to two.

Cancer Council of Western Australia Act Amendment Act 1980 - No. 24 of 1980

The amendments provided for changes in composition of the Council and changed the term of appointment so that one third of the members retire each year. The functions of the Council were expanded to allow further community services to be carried out by the Council.

Dental Act Amendment Act 1980 - No. 94 of 1980

Amendments provided for reduction of Board members by one and the nomination of members process is simplified. Overseas persons applying for registration as dentists are required to pass the Committee's Dentistry Examination before being eligible for registration.

REGULATIONS

Changes made during the year were:-

HEALTH ACT

Drugs of Addiction Notification Regulations

Made on September 26, 1980 to assist in the control of drugs of addiction and drug addicts.

Food and Drug Regulations

Regulations A.01 and H.02 amended on September 26, 1980 concerned with date marking and ingredient labelling.

Health Act (Immunisation By Local Authorities) Regulations

Regulations amended on September 26, 1980 to prescribe measles, tuberculosis and rubella and to delete smallpox.

Meat Inspection and Branding Regulations

Amended on October 10, 1980 to alter the schedule of fees for Northam and Kojonup Shire Councils.

Amended on December 19, 1980 by inserting and deleting various Shire Councils in Schedules B and C.

Pesticides Regulations

Amended on March 28, 1980 requiring an approved emetic to be incorporated in preparations of Paraquat.

Amended on July 18, 1980 with main amendment imposing a fee of \$20 for initial applications.

Amended on July 28, 1980 in relation to the application of pesticides with particular reference to commercial food crops.

Amended on August 1, 1980 to enable samples of pesticides to be taken after mixing and during use.

Piggeries Regulations

Schedule amended December 18, 1980 to add Shire of Chittering.

Public Buildings Regulations

Regulation 19 amended and Regulation 19A inserted on September 26, 1980 to regulate platform and seating arrangements in public buildings.

OTHER ACTS

Nurses Regulations

Amended December 5, 1980 in relation to the qualifications of nursing aides and mental health nursing aides, educational requirements and examinations.

Noise Abatement (Neighbourhood Annoyance) Regulations

Published on August 29, 1980 to assist in the control of noise from industrial and residential premises.

Physiotherapists Regulations

Amended on November 7, 1980 to allow for the recognition of certain educational institutions conducting courses in physiotherapy.

Poisons Act Regulations

Substantial amendment of these regulations was effected on August 29, 1980 to more effectively control the prescribing of drugs of addiction.

Radiation Safety (Qualifications) Regulations

Published June 6, 1980 and specifying the qualifications required of persons engaged in certain activities and the syllabus for examinations in radiation safety.

STATE HEALTH LABORATORY SERVICE

There has been a further increase in work load especially in Branch laboratories which reflects, to some extent, a general improvement in medical services in country areas. The increase has been achieved with a satisfactory overall reduction in cost per specimen.

The Combined Laboratories continue to work well and their success is largely due to the willing co-operation of the various participants under the guidance of the Laboratory Users Management Committee Chairman, Dr. W.D. Roberts.

The report on the public health activities of the laboratories contains interesting information on gastro-enteritis and on the salmonella. Environmental health and food hygiene make continually increasing demands.

CHEST AND TUBERCULOSIS SERVICES

There was a slight fall in the incidence rate of 12.4 new cases per 100,000 as compared with a rate of 13.7 in 1979. A total of 167 patients was notified and these included 98 who were born outside Australia, 44 of these being Vietnamese. It is worth noting that the report concludes that there is no record of any case which had received adequate treatment becoming active again. The average length of stay in hospital has been reduced from 41 to 30 days.

EPIDEMIOLOGY AND SPECIAL SERVICES

It is regretted that there was a decrease of nearly 10% in the number of immunisations carried out during 1980. It is suggested that this is due to increasing public apathy but the new immunisation schedule may have contributed. First booster doses in the new schedule are given at age 18 months instead of 12 months so that fewer children were required to attend for this particular dose. A publicity campaign is proposed for 1981 aimed at increasing the general level of immunisation in the community. A total of 80,000 girls have now been vaccinated against rubella.

VENEREAL DISEASE CONTROL

There was a further decrease in the total number of notifications and this number has now decreased by nearly 50% since 1975. It may reasonably be assumed that considerable credit for this is due to the work of the clinic in that despite the falling incidence, the number of attendances at the clinic continues to increase.

The Venereal Diseases Co-ordinating Committee plays an important role and we are indebted to the Chairman of the Committee, Professor J.D. Martin.

COMMUNITY AND CHILD HEALTH SERVICES

This Branch is increasingly concerned with health promotion and the prevention of handicap and disability in the community. It also has a considerable commitment to the promotion of health and the prevention of disease among Aborigines. Encouraging trends in the improvement of Aboriginal health are continuing, and these were reflected in reduction in Aboriginal infant mortality and other similar indices. In fact, indications of parity between Aboriginal health and non-Aboriginal health in the metropolitan area has led to a reduced commitment to Aboriginal health exclusively in the metropolitan area which will, it is hoped, enable us to concentrate resources in other areas of need.

The assistance of specialists and their Colleges, especially in the treatment and prevention of eye and ear disease is greatly appreciated.

KIMBERLEY HEALTH REGION

The Kimberley Health Region was established during the year on an experimental basis. All Public Health resources are combined in a single administrative structure headed by a Director, and Dr. Randy Spargo was appointed first Director. There is early evidence that this has been highly successful in the production of a co-ordinated, integrated community health service and the report on the Region's activities makes interesting reading.

COMMUNITY HEALTH PROGRAMME

Once again, progress in the development of Community Health Programmes has been greatly restricted by limited funds. The services funded under the programme are redesigned to prevent premature or inappropriate placement in hospitals and nursing homes as well as the promotion of preventive health programs, all of which are firmly based but are very dependent upon the community.

PHARMACEUTICAL SERVICE

Using the Poisons Act and its Regulations, considerable progress was made in the control of the illicit use of drugs of addiction, as specified in the 8th Schedule of the Act. All the Schedules in the Act were re-examined and amended in accordance with advice from the National Health and Medical Research Council.

STATE X-RAY LABORATORY (PHYSICS)

There is already effective control over radiation from x-rays and radioactive substances and officers from the laboratory are developing skills in the control of harmful non-ionising radiation. There is increasing use of radiation in industry and the report rightly draws attention to the desirability of incorporating radiation protection requirements in the planning stage of new developments.

More resources have been devoted to problems associated with the mining and milling of uranium ores and to the recognition of possible problems in the mineral sands industry.

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT

Proposals were developed to amend the Noise Abatement Act and the Clean Air Act to reflect over 10 years experience in the administration of these Acts. These will be presented to Government for acceptance during 1981.

For the 7th successive year there was no newly diagnosed case of tuberculosis in miners, and only one new case of silicosis in the gold mining industry. Pneumoconiosis now appears to be found only in former miners, and follow-up examination of ex-miners revealed 16 new cases of asbestosis and 16 new cases of silicosis. There were 10 new cases of mesothelioma, nearly all associated with the Wittenoom mine.

DENTAL HEALTH

462 primary schools now receive a dental therapy service representing cover for over 90% of the total enrolled primary school child population. The combined benefits of the fluoridation of public water supplies and the school dental service are now apparent and data confirming significant success in the control of dental decay is available.

NURSING ADMINISTRATION

Details regarding the nursing service have been supplied by Miss Bohan, Principal Director of Nursing, and there is a separate report on community nursing by Miss Reid, Director of Community Nursing.

Nurses provide a very significant proportion of the work force in public health services and the importance of nurses is becoming increasingly recognised.

EDUCATION SERVICES

This is a new branch designed to co-ordinate and integrate various small sections concerned with education, particularly health education. It was made possible by the absorption of the staff formerly employed by the Health Education Council following the repeal of certain sections of the Health Education Council Act. It is proposed that more attention will be paid to health promotion as well as their maintaining the more traditional aspects of health education.

STATUTORY AND OTHER COMMITTEES

Separate reports have been submitted to Parliament on behalf of a number of statutory authorities, e.g. Air Pollution Control Council, Noise and Vibration Control Council and the Radiological Council. Other committee reports - the Anaesthetic Mortality Committee and the Report of the Congenital Malformation Register are included here.

HEALTH SURVEYING BRANCH

A great deal of information is made available in the report by the Chief Health Surveyor. It reflects, perhaps poorly, the continuous ongoing activities of health surveyors in the monitoring and control of potential environmental health problems in Western Australia. Perhaps, too, it gives a little indication of the heavy demands made suddenly upon the members of the Branch in emergencies relating to food contamination and procedures for recall.

The acceptance by Health Ministers of the final draft of the Australian Uniform Food Act is described by the Food and Nutrition Officer as a historical milestone in food legislation.

STATISTICS BRANCH

The phased handover of the hospital morbidity system is almost complete and for the smooth transition we are indebted to the Australian Bureau of Statistics, Perth Office and, of course, to the officers of this Branch.

Increasing computerisation in the public hospitals is greatly assisting data collection and is offsetting, to some degree, staff shortages.

The new Midwives Data Processing System and the establishment of the Congenital Malformations Register represent major advances. The appointment of a full-time Medical Officer, Dr. Michael Hatton, to the Cancer Register will enable a complete review to be made of the Register.

STATE HEALTH LABORATORY SERVICES



V. Blackman,
M.B.B.S., M.R.C.S., L.R.C.P.,
F.R.C.Path., F.R.C.P.A., D.P.H., D.C.P.
Director

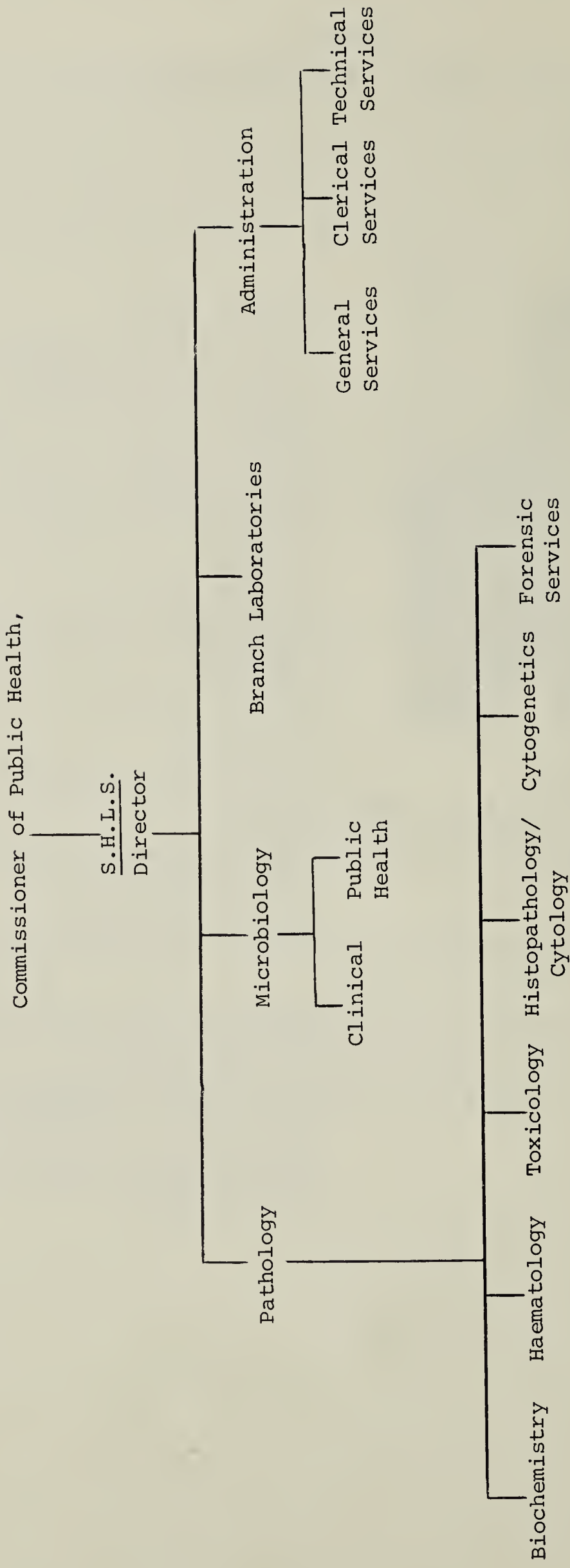
SENIOR STAFF

Director: Dr. V. Blackman
Deputy Director: Vacant
Principal Technologist: Mr. A.R. Fergie
Deputy Principal Technologist: Mr. G.S. Faulkner
Administrative Officer: Mr. P.E. Payne
Clinical Pathologist: Dr. H.J. Woodliff
Clinical Pathologist: Dr. A.J.N. Gaman
Immunologist: Dr. M.S. Stuckey
Pathologist, Cytogenetics: Dr. M.T. Mulcahy
Microbiologist: Dr. A. Henderson
Forensic Pathologist: Dr. D. Hainsworth
Forensic Pathologist: Dr. D.A. Pocock
Forensic Pathologist: Dr. J.M.N. Hilton
Clinical Pathologist: Dr. J. Shapiro
Clinical Pathologist: Dr. J.A. Pollard
Clinical Pathologist: Dr. R.J. Glancy
Clinical Pathologist: Dr. V. Caruso

HEADS OF COMBINED UNITS, NOT S.H.L.S. STAFF

Biochemistry: Professor D.H. Curnow
Toxicology: Professor J.W. Paterson
Haematology: Dr. J.L. Raven
Histopathology/Cytology: Professor M.N.-I. Walters

STATE HEALTH LABORATORY SERVICES - ORGANIZATION CHART



STATE HEALTH LABORATORY SERVICES

1. INTRODUCTION

1980 saw a further increase in work load - some 5% in central areas and 15% in branch laboratories, an overall growth of 8.4%. Branch laboratory work load growth - 12% in 1979 and 15% in 1980, probably reflects the growing number of younger doctors now entering practice in country areas, as much as increasing reliance on technological information in diagnosis and treatment of disease. However in the present financial climate there is no doubt that more direct emphasis must be put on restraint of pathology requesting. The Clinical Biochemistry section has noticeably been able to do this by abandoning less rewarding analyses and only performing others under specified circumstances. This has converted an increase in work from 29% in 1979 to 1% in 1980. In the past restraint has been largely a matter of exhortation and education of medical practitioners; as stated above, more must be done by polite refusal in certain circumstances.

One again, the average cost per specimen showed a fall whether or not revenue collection was taken into account. While with revenue not taken into account this amounts only to five cents per specimen, it means that the fall in real terms is greater than this, for inflation has not been taken into account. The reason is obvious - budgetary provision rose by just over 7% for the laboratories while work load increased by 8.4%.

Further progress was made in the control of combined laboratories. The Laboratory Users' Liaison Committee (L.U.L.C.) which had performed pioneer work in establishing combined laboratories and recommending administrative and financial matters for their better running, found itself in difficulties when lacking any executive authority over relatively minor matters. After discussion, a new body - the Laboratory Users' Management Committee was set up by agreement of the Commissioner of Public Health and Medical Services, the Vice Chancellor, University of Western Australia, and the Board of the Sir Charles Gairdner Hospital. This new body, under the chairmanship of the Director of Hospital and Allied Services, was given some executive authority in the area of combined laboratories. It was assisted by a Pathology Advisory Committee, consisting of heads of major pathology disciplines on this site, plus the three directors - State Health Laboratories, Hospital and University Pathology Services and Department of Microbiology, which addressed itself in a pragmatic manner to solving the common problems of the various disciplines of pathology. To date this new arrangement has worked well and smoothly.

The administrative section and small analytical units in "J" (or North) Block were moved to temporary quarters towards the end of the year in order to clear the area for the completion of construction of "J" Block. Administration is housed in "R" Block, previously the original Nurses' Home.

The role of the State Health Laboratories in Government non-teaching hospitals was defined by a new committee set up by the Minister for Health to recommend on changes in pathology organisation in the State. During the year the Mount Hospital closed and Wanneroo Hospital opened; conveniently the staff and equipment of the former were transferred to the latter. Also during the year, for the first time for many years, it was found possible to station a pathologist at Bunbury to supervise the service to the South West, and to report on histopathology, cytology, bone marrows etc., also to conduct autopsies - forensic and other. The service has been appreciated locally.

No firm progress was made in the proposed handing over of Kalgoorlie Commonwealth Laboratory to State Control.

A Public Service Board enquiry into staffing of the Combined Haematology Unit showed the necessity for extended out-of-hours' cover in that unit, and consequently permission was obtained to recruit technological staff for night work.

A small outbreak of meningitis due to an amoeba, *Naegleria fowleri*, the first in Western Australia, occurred during the summer months of 1980. The disease is associated with high ambient temperatures, swimming baths or pools, occurs in small children and has a high fatality rate. Still a rare disease, it causes considerable alarm in the community. The outbreak led spontaneously to a marked increase in water testing both for consumption and swimming, as well as the increased sampling initiated by Health Authorities. There is no doubt that swimming pool hygiene has improved as a consequence of the infection.

During the year Legionnaires' disease was diagnosed for the first time in Western Australia. Several other rareties appeared as can be seen in the detailed report. Plans were finalised for virus testing of underground water supplies.

STATISTICS

A decision was made by the Laboratory Users' Management Committee to use the Canadian Work Unit System for statistical analysis of laboratory work as and when laboratories became computerised. It was recognised that the laboratory work was only one facet of work in most laboratories - clinical management of patients, consultation, research, teaching, development etc. being other facets of work load. However, interpreted with caution such statistics could be used to monitor changes in bench work in any one laboratory. As a consequence of this decision, the Clinical Biochemistry statistics are reproduced on the Canadian system and will probably continue to be so shown.

2. ADMINISTRATIVE SERVICES

FINANCE

Once again it has been possible to contain expenditure within the budget allowance. A close watch is still kept on all orders placed by the various departments of the laboratories with monthly statements

of spending being issued to section heads.

Whilst sufficient funds have been made available for day to day running costs no funds were allocated for new equipment and very little for replacement equipment, a situation that can not continue indefinitely.

STAFF

Staff changes are shown below:

Position	Recruited	Resigned	Retired	Services Terminated	Transferred
Deputy Director		1			
Pathologist	2				
Clinical Pathologist	1				
Senior Technologist	1	4			
Technical Officer	1	1			
Cytotechnician	1	1			
Technologist	12	13			
Laboratory Assistant	26	24	1	1 (SYETS)	1
General Assistant	1	1		1	
Mortuary Assistant	1				
MSc Student	4	1			
P.H. Nurse		1			
Data Processing Officer	3	1			1
Typist	7	4	1		
Clerk	1				1
Clerical Assistant	8	6		3 (SYETS)	
Animal House Attendant		1			
Programmer	1	1			
Laboratory Attendant	2	3			
Security Officer	1				
Driver	1	1			
Vacational Employee		7			

Important changes of senior staff are as follows:

Dr. Grant Pattison	-	Deputy Director, resigned on 1/2/80.
Dr. H.J. Woodliff	-	Clinical Pathologist, commenced on 21/1/80.
Dr. K.E. Williams	-	Pathologist, commenced on 2/6/80.
Dr. V. Caruso	-	Pathologist, commenced on 20/10/80.

SUPPLY

The computerisation of the stores and inventory system should be finished by June 1981. The committee system for the scrutiny of all requisitions has maintained the effectiveness of the management budgetary control system.

SPECIMEN RECEPTION AND BILLING

The only major change this year was the relocation of Specimen Reception. Early in the new year an area in the old hutted component was refurbished to accommodate Specimen Reception, the Mail Room and the Technologist in Charge. This move was accomplished on March 29, 1980, and it was made necessary because of extensions to be made to "J" Block.

Form Registration

This year saw the acquisition of three E.C.S.4500 microcomputer machines to replace the four key-tape machines which are used to prepare data for patient billing. The key-tape machines had reached the end of their effective working life and it was no longer possible to be sure of their continued maintenance.

Staff training and system proving has taken place, and it is envisaged that the method of data preparation for billing will commence early in 1981.

Work Volume

In the year 1980 there were 423,971 requests received by the laboratories for testing, which were given accession numbers. Requests from medical audits, public health etc. are not numbered in this system. Branch laboratories are using their own particular accession numbers from July 14, 1980. The number of requests has increased in 1980 as compared with 1979, the percentage increase being 11.4%.

SURVEYS

Medical Audits Held in Conjunction with Community Health

No medical audit programme was carried out this year.

Health Screen on Vietnamese Immigrants

The total number of persons screened this year was 1,346, in groups of an average of 40. Blood and faeces specimens were collected by laboratory staff and the following tests were performed:-

- (a) Full blood count, including a screen for malarial parasites.
- (b) Treponemal serology.
- (c) Examination of faeces for pathogens and parasites.
Two specimens per patient were examined.

Blood Lead Monitoring (Occupational Health)

A total of 186 blood specimens for blood lead levels were collected by laboratory staff at the request of the Division of Occupational Health. With a few isolated exceptions all were bled at their place of occupation by appointment. Full blood pictures were also done on these specimens.

Other

Forty children from Nulsen Haven were bled twice during the year for serum Dilantin levels and full blood picture.

COMPUTERISATION

General

The computerisation project developmental work has proceeded steadily despite several setbacks.

These were:-

- (a) Abandonment of the Patient Request Registration System after live testing that revealed an unacceptable delay in specimens reaching destination laboratories due partly to staff shortages.
- (b) The decision by the Combined Department of Haematology not to proceed with the proposal based on the R.P.H. system.
- (c) A vacancy for a Computer Programmer Grade II created by the resignation of a Systems Analyst.

Major Areas of Development

In summary, work proceeded in the following areas during 1980:-

- (a) Programming, testing and implementation of a key-to-disc data entry system for the Pathology Billing System, using E.C.S.4500 microcomputers.
- (b) Programme specifications for extraction of laboratory data for statistical analysis.
- (c) Several general purpose programmes related to dictionary cross-referencing, data extraction, updating and creating records.
- (d) A proposal for a country branch laboratory system was written.
- (e) A preliminary system proposal for the Microbiology Division was completed.
- (f) A system proposal for the Serology laboratory was written.
- (g) A bacterial identification system for the Clinical Microbiology laboratory was written and demonstrated.
- (h) A wordprocessor and associated printer was installed in the Histopathology Department. By means of a punched paper tape, reports are telexed to country branch laboratories with adequate security precautions.
- (i) A review of the Patient Request Registration system was carried out. As a result a fresh approach will be made in 1981.

Staffing

Two more Medical Technologists attended a Cobol training course and received in-service training at Health Computing Services. Three Medical Technologists previously trained in programming attended a Systems Analyst course. All five reached a satisfactory standard and were employed on various projects for most of the year.

Hardware

The following items of computer equipment were purchased and received during 1980:-

- (a) Four E.C.S.4500 microcomputers.
- (b) One E.C.S.4500 wordprocessor with ancillary equipment.
- (c) One Almgren AM 700 E telex interface.
- (d) Three CSI Concentrators CP.
- (e) One AM 722 Data Line Splitter.

The PDP 11/34 concentrator second panel was brought into use when a second modem was connected. Twelve of the sixteen ports available on this panel are now being used. Projected development into 1981/82 will necessitate use of the CSI's or some other alternative to handle the additional terminals anticipated.

TRANSPORT AND COMMUNICATION

Motor vehicle replacements have been made as necessary. Budget restrictions resulted in the replacement of the Dampier and Pinjarra cars being postponed until 1981/82.

All facsimile machines in branch laboratories have been replaced by telex machines and a telex machine has also been installed at Wanneroo and Bunbury laboratories. Biochemistry results are being telexed direct from the computer and histopathology results are being telexed by tape from the wordprocessor.

3. TECHNICAL SERVICES

MEDIA

The figures show a reduction of tubes/bottles due to method changes in Central Microbiology, mainly Salmonella and Waters laboratory. Biopsy jars are now filled by branch laboratories so as to reduce freight costs.

Media Statistics

	1980	1979
Plates poured	1,363,813	1,166,322
Tubes/bottles	1,276,727	2,886,344

REAGENT PREPARATION

There was a slight increase in the work load due mainly to increased demand from Mycology and Toxicology.

ANIMAL HOUSE

The figures show a reduction of 62.93% in the number of Guinea pigs used for M. tuberculosis inoculations. Routine inoculation for all tuberculosis isolates ended in May 1980, in accordance with international custom. There was a diminution in the volume of horse blood taken - 840 litres as against 902 litres in 1979.

INSTRUMENTATION

The work load increased during the year. The increase was mainly in the organisation of servicing microscopes. At the Director's request Instrumentation became responsible for the routine servicing of microscopes. Seventy (70) microscopes were recalled, documented and sent out to the various agents for servicing.

4. MISCELLANEOUS

QUALITY CONTROL

There has been a gradual spread of quality control cover in laboratory disciplines and most sections are now subject to such control. Branch laboratories have regular programmes in biochemistry, haematology and microbiology of a standard appropriate to their work; centrally most sections belong to nationally or internationally controlled quality control groups. Toxicology and serology are two of the latest areas so covered.

Results are used not in a punitive sense, but to improve performance by education and alteration of test procedures. To date, results have been very satisfactory.

FIRE AND SAFETY

An accident reporting programme continued to operate with monitoring by the Safety Committee. Incidents reported were of a minor nature and injury to staff members have not caused prolonged absences.

A summary of accident frequency and description was circulated on a regular basis so that all staff could be made aware of dangerous practices.

IN-SERVICE TRAINING

The Education Committee has established two programmes for staff use. These have been directed at isolated centres in the main as travelling expense for staff to attend instructional courses is prohibitive.

A commercially procured set of booklets with updated technical information has been utilised for each subject. These have a self check question and answer provision which has received favourable comment from the participants. Slide/tape programmes on various subjects were circulated.

The formal group instruction course for new graduates was undertaken in January. This enabled smooth integration of the technologists who were all posted initially to the Branch Laboratory Services.

LIBRARY

Library services have continued to expand in response to the information needs of the staff. Medlars computer searches are now available through the terminal at the Department of Health and Medical Services.

During the period from March 1980/81 the library has supplied the following number of references:-

Book loans	476
Photocopies	3,127

The following additions have been made to the book and journal section:-

New books	170
Books on order	25
New Journals	9
Journals on order	3

PATHNOTE COMMITTEE

During 1980 a total of 16 Pathnotes were issued:-

Administration	1
Biochemistry	6
General	1
Haematology	3
Immunology	1
Microbiology	2
Toxicology	2

Pathnotes produced this year were on a variety of topics and even though the number produced was low, it indicates that the Divisions still see Pathnote as the best method of technical communication.

Several new methods were introduced and others were revised due to technical changes.

The 1979 Annual Report for the Mycobacteria Laboratory was produced during the year.

Pathnotes still receive wide acceptance in other institutions and health services and it is planned that during 1981 more Pathnotes will be produced explaining specimen collection and laboratory results.

5. BRANCH LABORATORY SERVICES

STATISTICS

The number of tests performed by branch laboratories during 1980 totalled 298,319 compared with 259,404 during 1979, an increase of 15.0%. This follows an increase of 13% between 1978 and 1979. The increases probably reflect an increase in numbers of medical practitioners in country areas.

During 1980, 21 laboratories had an increase in tests performed (average increase 24%) and five laboratories showed a decrease (average decrease 3%).

In the light of financial restraints, there will have to be more active culling of pathology requests in the future. Pressure of work is certainly one factor in causing a high turnover of staff in Northern areas.

BUILDINGS

A new laboratory scheduled for completion at Broome in December has been delayed and completion is not now anticipated before April 1981. A new laboratory at Kununurra to replace the old caravan reached the design stage but work has not yet started. Minor alterations were carried out at the Bunbury laboratory to enable histopathology processing to be carried out. (See later in report). The Mount Hospital laboratory ceased operating in May and a new laboratory at the Wanneroo Hospital was commissioned in August.

EQUIPMENT

The upgrading of flame photometers and spectrophotometers continued with the introduction of more model 400 Corning flame photometers and Gilford spectrophotometers.

Two new blood gas analysers were installed to replace old models at Derby and Geraldton. In addition, the long awaited move into automated biochemistry equipment was accomplished with the installation of 3 ABA 100 analysers at Geraldton, Port Hedland and Osborne Park.

INNOVATION

Dr. J. Pollard, pathologist, transferred to Bunbury in September; histopathology from within the South West region is now being processed at Bunbury and being reported on by Dr. Pollard.

Histopathology and similar specimens from Kalgoorlie are now collected and sent direct to State Health Laboratories, Perth, without passing through the Commonwealth Laboratory, which action previously caused some delay.

6. DIVISION OF MICROBIOLOGY

CROSS INFECTION SECTION

This was a very busy year with 2,556 examinations performed by one Medical Laboratory Technologist and one Laboratory Assistant. A breakdown of the sources of these is shown in the table below:-

Lyophilisation of Staph. aureus and other organisms	1,015
Spore strips for steriliser efficiency examinations	927
Water examinations for Legionnaires' disease	100
Pharmaceutical products tested for sterility	81
Graylands and Swanbourne Hospital hygiene survey	77
Queen Elizabeth II Medical Centre	68
Boans Store examinations on account of rotting lino	58
T.G.A. tests for disinfectant efficiency	57
Wanneroo Hospital for pre-opening hygiene survey	46
Hospital Laundry and Linen Service examinations	40
Red Cross Blood Transfusion Service tests for sterility	40
Reserve Bank air examinations	11
Quarantine Office	9
Heathcote Hospital floor cleanliness examinations	7
TOTAL:	<u>2,556</u>

Sterility Test Service

This year we received 71 specimens/antiseptics and creams and 10 specimens of water intended for patient use; only five specimens of water and one sample of antiseptic had to be rejected.

On behalf of the Red Cross Blood Transfusion Service 40 samples of blood and blood products were examined; all were sterile.

The country hospital sterilisation service continued to be monitored by means of examining 927 spore strips (as opposed to 829 last year); less than 3% failed, giving us confidence in the efficiency of the sterilisers in rural areas.

Control of Hospital Infection

Routine hygiene surveillance examinations were made at Graylands, Swanbourne, Heathcote and Wanneroo Hospitals. In one hospital deficiencies were found in cleaning; these were pointed out and considerable improvement resulted.

Around 100 examinations were made of water from theatre supplies and air conditioning units. The air conditioning units at Queen Elizabeth

II Medical Centre were found heavily contaminated with the fungus Cladosporium which is, however, of low pathogenicity. Taken in conjunction with the role of air conditioners in Legionnaires' disease this aspect of the work is likely to increase.

Testing of Disinfectants

Hitherto we have examined the disinfectants offered to the Government for purchase on tender, by the Kelsey-Sykes test; this has now been superseded by the Therapeutic Goods Act Test. Of 16 samples submitted only four passed.

Of particular interest was the examination of antiseptics for use against Mycobacterium tuberculosis. Of seven disinfectants tested, two were ineffective and the other five were effective when used at a concentration double that recommended by the manufacturers.

STAPHYLOCOCCUS AUREUS PHAGE TYPING SECTION

The number of cultures received was 4,155 - an increase of 3.3% over last year's 4,017 which was in turn an increase of 14% over the previous years. Of these 32.6% were non-typable. It is of interest to note that many more non-typable strains were received from country areas than from metropolitan hospitals.

During the year 22 strains of the type 80/81 and 33 strains of the type 71 were recovered: these are severely pathogenic but, so far as we know, did not cause any outbreaks.

A worrying feature was the isolation from seven patients of a strain of Staphylococcus aureus which is resistant to the drug methicillin. Fortunately these strains did not give rise to outbreaks but the situation is being observed closely.

ENTERIC DISEASE SECTION

A total of 936 Salmonella cases were diagnosed by or reported to the Enteric Diseases Section during 1980 compared with 1,701 cases in 1979 and 993 cases in 1978. The increase in cases in 1979 was due entirely to the major foodborne outbreak of Salmonella muenchen traced to contaminated chickens; as no major outbreak occurred this year our figures are somewhat smaller.

Sixty seven Salmonella serotypes were identified in the overall total of human infections compared with 66 in the previous year.

The most common serotypes encountered were S. typhimurium (265), S. anatum (96), S. muenchen (67), S. havana (57), S. chester (40), S. seftenburg (37), S. wandswoth (34), S. adelaide (27), S. saint-paul (26), S. give (20), S. oranienburg (20), which accounted for 689 cases, 73.6% of the total isolations.

Salmonella Food Poisoning

One incident was associated with a barbeque attended by some 60 people in Derby on the evening of May 3, 1980. At least 20 persons suffered symptoms of gastro-enteritis after the function with onset ranging from a few hours to four days. All patients with symptoms had consumed under-cooked barbequed pork at the function whereas no ill effects were recorded among individuals who consumed food items other than the pork.

A total of 11 patients with symptoms were found to be infected with Salmonella. *S. give* was isolated from eight persons and *S. ball* from five, with two individuals infected with both serotypes.

The suspect pig carcass in this incident was reared on an adjacent station property and slaughtered locally.

Waterborne Salmonella Infection at Marble Bar

Since April 1980 *Salmonella wandsworth* and *Salmonella rubislaw* together with other *Salmonella* serotypes have been regularly isolated from routine drinking water samples submitted to the Water Testing Laboratory from agencies in Marble Bar (see chart).

April	:	<i>S. wandsworth</i>
May	:	<i>S. jangwani</i> , <i>S. havana</i>
June	:	<i>S. give</i>
July	:	<i>S. rubislaw</i> , <i>S. wandsworth</i>
August	:	<i>S. wandsworth</i>
October	:	<i>S. ribislaw</i> , <i>S. chester</i> , <i>S. wandsworth</i>
November	:	<i>S. ribislaw</i> , <i>S. wandsworth</i> , <i>S. orion</i> , <i>S. oranienburg</i>

Forty nine faecal samples were submitted from residents with a history of enteritis over the period October 31 to November 22, 1980. These specimens yielded 18 cases of Salmonellosis with 23 isolations of the following serotypes: *S. wandsworth* (15), *S. rubislaw* (4), *S. anatum* (3), *S. bournemouth* (2), and *S. longon* (1). One patient carried three serotypes (*S. rubislaw*, *S. bournemouth* and *S. anatum*), and five others had double infections.

Salmonella typhi

Three cases were diagnosed in Western Australia during 1980. One case was a 30 year old Vietnamese woman who migrated to Western Australia in January 1978. Only *Salmonella anatum* was isolated from her at the specimen screening on arrival.

In August 1980 she applied for work in the kitchen of one of the major metropolitan hospitals and a faecal specimen taken at that time by the Staff Occupational Health Officer revealed the presence of *Salmonella typhi*. Subsequent specimens examined in December 1980 showed *S. typhi* still being excreted despite antibiotic treatment.

The other cases were from an eight year old male traveller returning from Singapore and Indonesia and from a four year old male Vietnamese refugee.

Campylobacter fetus

This pathogen continues to play an important role in the diagnosis of gastro-intestinal disorders.

During the year ended December 31, 1980, a total of 2,905 selected faecal specimens investigated yielded 196 isolations (6.75%) representing 167 cases (5.75%). There were also 67 case notifications from other metropolitan hospitals.

The majority of infections occurred in the South West and Kimberley divisions with 59 and 44 cases respectively, and of the cases diagnosed 52% were in children under five years of age.

Co-infection with other intestinal pathogens included *Shigella sonnei* (3), *Shigella flexneri* (3), *Salmonella seftenberg* (3), *Salmonella muenchen* (2), *Salmonella typhimurium*, *S. bovis-morbificans*, *S. oranienburg*, *S. tennessee* and *S. champaign*, and with intestinal parasites including *Giardia lamblia*, *Hymenolepis nana*, *Strongyloides stercoralis* and *Ancylostoma duodenale* were recorded.

Shigella Infections

A total of 302 *Shigella* cases were diagnosed during 1980 compared with 655 cases the previous year. The decrease was primarily due to a general downturn in the number of *Shigella sonnei* cases diagnosed in the metropolitan, South West and Kimberley divisions.

Shigella flexneri types 2 and 6 and *Shigella sonnei* were the most common serotypes encountered.

Vibrio Infections

Three notifications of *Vibriosis* were received. One isolation from a two year old child with gastro-enteritis and fever was identified as *Vibrio cholerae*, but was not the variety which causes Asiatic cholera. The two other isolations were from adult travellers from India and Malaysia who presented with food poisoning associated with the consumption of shellfish. The organism in each case was identified as *Vibrio parahaemolyticus*.

Clostridium perfringens

A Sunday luncheon function, at a leading metropolitan restaurant, was attended by some 32 persons. Symptoms of food poisoning developed in 27 individuals, 8 to 10 hours later with all suffering diarrhoea and some with vomiting. Faecal samples collected from 9 persons affected presented to the laboratory on the Tuesday resulted in a heavy growth of *Clostridium perfringens* Type A from all specimens collected. No other pathogens were isolated.

Unfortunately no food items from that particular meal, which included both hot and cold dishes, were available for testing but the evidence

obtained points to the *Clostridium perfringens* type A isolated being the cause of this food poisoning incident.

Enteric Parasites

A total of 14,360 faecal specimens were examined, from which 2,019 parasitic identifications were recorded compared with 2,405 the previous year.

The regional distributions for 1980 were Perth 670, Kimberley 606, and other regions comprising Pilbara, Central, South West and Eastern regions 743.

Giardia lamblia was the most common parasite identified in all regions and comprised 57% of all cases.

Screening specimens from Asian immigrants revealed a number of parasites including hookworm, *Strongyloides*, *Trichuris trichiura*, *Taenia* sp., *Clonorchis sinensis*, *Ascaris lumbricoides* and *Giardia lamblia*.

Trichostrongylus sp. ova and *Isospora belli* cysts were each identified on one occasion.

ENVIRONMENTAL SECTION

During 1980, the second full year of operation of the Environmental Section, the unit received a total of 18,529 samples. The number of samples received in 1980 was reduced for two reasons:-

1. The outbreak of food poisoning in February and March 1979 caused by *S. muenchen* in poultry was reflected in the number of animal swabs, cultures referred and effluents received in that year.
2. There was a reduction in water catchment monitoring.

Major activities of the Section in 1980 comprised the following:-

1. The bacteriological study of water catchment areas, commenced in 1979 in collaboration with the Metropolitan Water Board, continued throughout 1980. As a result of the 6,584 samples received, 4,672 were tested for *Salmonella* and 711 were found to be positive. This comprises 795 isolations of 43 serotypes. Of these, 22 serotypes (608 isolations - 76%) were native serotypes, normally associated with wildlife, that have a very low incidence in causing human infections, 6 serotypes (139 isolations - 17%) were native serotypes that have arisen as significant pathogens in recent years (*S. chester*, *S. muenchen*, *S. orion*, *S. potsdam*, *S. rubislaw* and *S. saint-paul*) and 15 serotypes (48 isolations - 7%) were so-called exotic serotypes commonly implicated in infections of humans and livestock. Bacteriologically, the catchment streams are generally still in good condition and the monitoring programme has enabled problem areas to be pinpointed.

2. Routine monitoring of the three major poultry processing plants was undertaken in conjunction with the Public Health Department. This included a preliminary investigation into the incidence of *Campylobacter fetus* in live birds and carcasses. Of 40 cloacal swabs examined, 40 (100%) were positive for *C. fetus*, and of 20 carcasses, 12 (60%) were positive. The importance of this observation is that chickens are now known to be a source of two important food poisoning organisms, *Salmonella* and *Campylobacter*.
3. The incidence of *Salmonella* on kangaroo carcasses arriving at pet food processing plants from country areas was studied in conjunction with the Public Health Department. Of the 109 carcasses examined, 30 were found to be positive for *Salmonella* and comprised 58 isolations of 16 serotypes. Now many city stores keep their kangaroo meat in refrigerators kept solely for that purpose.
4. The survey on the incidence of *Salmonella* in cattle, sheep, pigs and goats presenting for slaughter at metropolitan abattoirs, commenced in 1978 was completed in early 1980. The animals originated from farming areas throughout Western Australia including the Kimberley region. Infection rates obtained by rectal swabbing were cattle 32%, sheep 8.9% and goats 14.8%. Carrier rates in individual herds ranged as high as 70% and presumably reflected the problems of cross contamination and stress due to prolonged transportation and lairage.
5. In conjunction with the Northam Shire Health Surveyors and several farmers in the Northam area, a bacteriological study was made over the 12 months period of farm dams, the results being related to stock usage. The Section established that *Salmonella* contamination of the farm dams studied was sporadic and showed no obvious trends. Serotypes isolated were diverse and ranged from those commonly associated with livestock, effluents and human infections to those normally restricted to wildlife and natural waters. Levels of faecal coliforms were often very high and it was concluded that *Salmonella* carrier rates in the livestock frequenting the dams tested was probably low. A further survey was carried out on one particular flock of sheep from a farm in the Northam area. This flock was monitored in the farm environment, again at the abattoir, after overnight lairage and after slaughter as washed carcasses. *Salmonella* were not isolated from the live animals either at the farm or the abattoir but 12 of the 100 carcasses were found to be contaminated with *Salmonella* presumably acquired from the equipment and/or staff in the slaughter room.
6. Various agencies submitted regular samples that gave rise to extensive bacteriological monitoring of bathing beaches, rivers, and lakes in metropolitan and country areas. From this study we have been able to establish base line figures for health safety on beaches and found that for the most part, bathing beaches were free of any significant faecal contamination and fell well within current standards for

natural waters used for recreation.

7. Rottnest Island was visited twice in the latter part of the year and samples were taken of water catchment and supply, sewage, bathing beaches, lakes and wildlife. A considerable improvement in environmental hygiene was noted.
8. Extensive Salmonella serotyping of cultures received from the Department of Agriculture, the Association of Poultry Processors and various private laboratories was undertaken in order to monitor the overall incidence of Salmonella.
9. The multiple tube technique for the estimation of faecal coliforms was replaced by membrane filtration methods for routine analysis of waters and effluents. This change in technology allows us to process a steadily increasing number of samples without any increase in laboratory staff. A further faecal monitor, the faecal Streptococcus was also introduced routinely for samples of bathing beaches, rivers and other natural waters used for recreation.

FOOD MICROBIOLOGY SECTION

The number of samples received for analysis during 1980 was 4,387, a reduction of 8.3% from the 4,784 samples received in 1979. This reduction was due to the suspension of the National Health and Medical Research Council food survey.

Eggs

Of 439 samples of pasteurised egg pulp examined on behalf of the Department of Primary Industry, only one consignment had to be condemned; this was contaminated by *Salmonella typhimurium*.

Milk Products

Of 170 samples of skim milk, milk powder, caseinates and cheese examined for the Department of Primary Industry, all were satisfactory.

Honey Bee Pollen

An addition to the work load of the laboratory is the analysis of honey bee pollen destined for export to the U.S.A. No pathogenic bacteria were encountered in the samples examined.

Prawns

Of 254 samples of imported, peeled, cooked and frozen prawns sampled for the Quarantine Department of the Commonwealth Government, one consignment was condemned on account of *Vibrio parahaemolyticus* contamination, one on account of *Staphylococcus aureus*, one on account of *Salmonella agona* and one on account of *Salmonella weltevreden*.

Poultry

The monitoring of the produce of major processors continued. Of 432 fresh, raw chickens, 245 (56%) contained Salmonella, the most frequent serotypes being *S. typhimurium*, *S. saint-paul*, *S. infantis* and *S. singapore*; *S. muenchen*, responsible for last year's food poisoning outbreak, was isolated on 29 occasions.

Sausage Casings

On the discovery of *S. anatum* in sausage casings in a large factory a further series from a number of sources was examined. We found that there was no legal or recognised trade practices for the cleaning of skins, with the result that 30% were found to contain Salmonella.

Sausages

The discovery of Salmonella in raw sausages led to the examination of their ingredients. One sample of beef alone contained 11 serotypes of Salmonella.

Goat Milk

Goat Milk from selected farms was found to be unsatisfactory. The Department of Agriculture has now dealt with the problem.

Oysters

Of the 160 oyster samples examined we found *Clostridium perfringens* to be a frequent constituent of these oysters of Japanese origin. This organism was isolated from several groups of patients with enteritis but we are in doubt as to the significance of the finding as approximately 50% of consignments of Sydney oysters are similarly contaminated without causing enteritis.

Frog Legs

Several consignments of imported raw frog legs were contaminated by *S. thompson*, *S. kottbus* and *S. bareilly*.

Frozen Pre-cooked Foods

As the National Health and Medical Research Council recommended that the State introduce their standards for pre-cooked, frozen foods we examined 115 samples of locally produced foods. We found that foods containing minced meat, raw cheese and potatoes could not meet the N.H. and M.R.C. standards. Subsequently the Food and Drug Advisory Committee of Western Australia rejected the standards.

Canned Fish

A total of 2,328 cans processed at an Albany factory were examined as a result of complaints of blown cans and food poisoning. Of these, 25 cans were found to contain *Citrobacter*, *Enterobacter*, *Serratia*, *Aeromonas*, *Proteus* and *Clostridium* which had leaked into the cans while these were being cooled. The factory was closed until new machinery could be installed.

Food Poisoning Outbreaks

Twenty alleged food poisoning incidents were investigated. Among the causes were *Bacillus cereus*, *Salmonella typhimurium*, *S. derby* and *S. seftenberg*.

One interesting series of vehicles involved were plastic model pink elephants imported ready filled with drinking water. These were intended to be frozen and used in place of ice cubes in beverages. The water was found contaminated with *Pseudomonas* and *Alkaligenes* and the matter dealt with by the Commonwealth Department of Health.

MEDICAL MICROBIOLOGY SECTION

A total of 12,043 specimens were examined in 1980, a rise of 3.3%. Among the interesting cases this year were the following:-

1. Brucellosis

Brucella abortus was isolated from the blood cultures of an employee at a meat processing plant.

2. Listeriosis

Listeria monocytogenes was isolated from a leg ulcer. Of other strains of *Listeria* received we were unable to classify three; these appeared to be unrelated to existing species. They were derived from a submandibular abscess and an infected skin lesion.

Among improvements introduced this year was a staining method for amoebae which allows amoebae to be distinguished from pus cells without the need to wait several days for cultures.

MYCOBACTERIUM SECTION

A total of 9,133 specimens were received as compared with 9,966 in 1979; of these 749 yielded Mycobacteria. In addition to these, 462 smears were received for leprosy diagnosis of which 199 were positive.

Projects Completed

1. Water

Of 40 samples of potable water examined, 17 contained Mycobacterium; these were, *Myco. kansaii* (11), *Myco. gordonae* (5) and *Myco. flavescens* (1).

2. Raw Milk

Of 185 samples of raw milk, 32 contained Mycobacterium; these were, *Myco. intracellulare* (9), *Myco. flavescens* (7), *Myco. fortuitum* (4), *Myco. gordonae* (4), *M. scrofulaceum* (2), *Myco. thermoresistibile* (1), and unidentified (5).

MYCOLOGY SECTION

This year 41,526 cultures were made, 18,468 microscopic examinations,

2,712 serological tests and 95 animal inoculations.

Superficial Mycoses

Pityriasis versicolor continued to be prevalent in this State and 198 cases were recorded this year. It is present in all age groups but particularly in young adults, the aboriginal population is prone to this disease. Nine cases of trichomycosis axillaris were recorded, 23 of erythrasma (16 of which involved toe spaces and 5 the groin). There was one case of white piedra caused by the fungus *Trichosporon cutaneum*, from the North of the State and another patient with a similar condition grew *Cryptococcus laurentii*.

Cutaneous Mycoses

These are common in Western Australia. This year 6,562 skin scrapings were examined by the Mycology Laboratory, 3,847 of which were collected by the Mycology staff. The specification as given in the Pharmaceutical Handbook for permit to prescribe griseofulvin is still rather loosely worded. Wood's light is of no value in diagnosing the majority of dermatophyte infections whereas the handbook gives the impression that they can be diagnosed in this way.

Two different species of *Microsporum* were isolated in human infections this year, *M. canis* and *M. gypseum*; and a third, *M. nanum*, from animals. Six different species of *Trichophyton* were isolated in 1980. *T. rubrum* (653 isolates) continues to increase in numbers each year, possibly due to the difficulty in curing these infections. This year we have adopted the British idea of dividing *T. mentagrophytes* isolates into the two varieties, i.e. *T. mentagrophytes* var. *interdigitale* and *T. mentagrophytes* var. *granulare*.

Ringworm animal infections are of interest in medical mycology as they are a constant source of human infections. Of the zoophilic fungi isolated this year the most common was *M. canis* followed by *M. mentagrophytes* var. *granulare*, *T. verrucosum*, *M. nanum* and *T. equinum* var. *autotrophicum*. *M. canis* is much more prevalent than the number of isolates (232) would indicate but these infections are more easily diagnosed clinically so patients are seldom sent for laboratory confirmation. While cats are still popular as pets, this type of ringworm will continue to be prevalent among children.

Fungal infections of the groin were the most common type of infection in 1980; there were 515 cases. Other sites most frequently involved were the trunk 460 cases, and the feet 452 cases.

Candida albicans, followed by *C. parapsilosis*, *C. tropicalis* and *C. guilliermondii* are the most common yeasts isolated from skin and were particularly common as a cause of groin and finger nail infection.

Superficial white onychomycosis of the toe nails due to non-dermatophyte filamentous fungi occurred in 17 patients, the chief aetiological agents were *Aspergillus* species.

Ear Swabs

Sixty nine fungal ear infections were recorded this year with *Aspergillus niger* the predominant pathogen followed by *A. flavus* and yeasts. *Candida parapsilosis* was more frequently isolated from the ear than *C. albicans* which points to the most likely source of the infection being the skin.

Vaginal and Cervical Specimens

Yeast infections were diagnosed in 32% of the 3,785 specimens examined this year, 88.5% of these were due to *Candida albicans*.

Throat and Mouth Specimens

The principal fungus causing these infections was *Candida albicans*.

Eye Specimens

Fungal eye infections appear to be uncommon. One actinomycotic infection, a yeast infection and a possible infection due to *Aureobasidium pullulans* were recorded.

Subcutaneous Mycoses

One case of chromoblastomycosis due to *Cladosporium carrionii* was recorded and three cases of sporotrichosis. Species such as *Fusarium* and *Cephalosporium* are occasionally isolated from leg ulcers, usually from patients with some vascular problem.

Systemic Mycoses - Cases of Interest This Year:-

1. A case of allergic bronchopulmonary disease due to a combination of two dematiaceous fungi *Drechslera hawaiiensis* and *Curvularia lunata*. This is the third patient in which we have recorded these fungi as a cause of disease. Because of the occurrence of the previous cases, we had prepared serological reagents and were able to confirm this patient's disease serologically as well as in successive cultures.
2. *Candida albicans* septicaemia was diagnosed post-mortem; this confirmed our previous serological findings of a presumptive systemic candidosis. The serological test is of value used in conjunction with culture of clinical material for monitoring and diagnosing this disease.
3. Probable allergic bronchopulmonary aspergillosis was recorded in 42 patients this year. Sputum from 10 of these was sent for fungal examination and the rest were identified serologically only. The common species involved was *Aspergillus fumigatus*, *A. niger*, *A. terreus* and *A. nidulans*. There were four patients with probable *Aspergillus* mycetomas in the lungs.
4. Specimen from an adult female with a history of chronic nasal discharge consisted of masses of mycelium and fungal spores

and grew a mixture of fungi some of which are commonly associated with allergic conditions, i.e. *Aspergillus* species and *Cladosporium* species.

5. Nocardiosis due to *Nocardia asteroides* was recorded in the lungs of two patients. *N. braziliensis* was isolated from a subcutaneous lesion on the arm of another patient.
6. *Cryptococcus neoformans* was isolated from a swab taken from the leg muscle of a patient.

Animal Specimens

Ear swabs from two dogs grew *Aspergillus terreus* and *Pityrosporum pachydermatis* respectively; *Aspergillus terreus* was isolated from the urine of a dog with systemic mycosis. *Petriellidium boydii* was isolated from the uterus of a mare and antibodies to this fungus were found in a blood sample from the animal; this fungus causes mycotic abortion in horses. *Aspergillus terreus* was isolated from the abdomen of an aborted calf.

Aspergillus flavus was isolated from two eye swabs collected from chickens and *A. fumigatus* was isolated from the lungs of a galah. A large abscess in the lymph node of a guinea pig was found to be infected with a phycomycete.

Dermatophyte infections in animals included *T. verrucosum* in cattle, *M. nanum* in pigs, *M. canis* in cats and dogs, *T. mentagrophytes* var. *granulare* in guinea pigs and *T. equinum* var. *autotrophicum* in a horse.

Industrial Specimens

A variety of specimens were tested this year and most revealed some fungal contamination. A new type of ceiling insulation material (tightly packed and bound straw) became mouldy when it got wet. Straw would therefore seem to be an undesirable material for this purpose. Specimens from airconditioners yield a variety of airborne contaminant fungi, some of which can be involved in allergic conditions.

Nocardia asteroides was identified from two novelty plastic ice cube drink coolers imported from the U.K. A baby and a woman became ill after swallowing some of the contents of these coolers.

SEROLOGY SECTION

This is the first year's work recorded after the amalgamation of the Serology Section into the Division of Microbiology. The number of specimens handled rose from 53,802 to 55,913, an increase of 4%.

New Techniques Introduced

A test for *Yersinia agglutinins* was introduced in 1980 with 12 requests being received in its first four months of operation. This will be of value in the diagnosis of enteritis.

The "Tennagen" assay will be evaluated in 1981 in comparison with the radioimmunoassay for carcino-embryonic antigen, a test used in the early diagnosis of cancer.

A RAST for hydatid specific IgE is currently being evaluated. Our present tests for hydatid disease can remain positive for years after the patient has been successfully treated. Our IgE test will probably become negative after treatment and will be a good test of cure.

The Toxocara indirect fluorescent antibody test introduced in 1979 and improved in 1980 has proven to be most successful and requests are on the increase from both local and interstate sources.

Of interest are the notifiable diseases diagnosed in the year:-

Syphilis	408
Leptospirosis	26
Brucellosis	9
Hydatid Disease	5
Filariasis	1
Typhus Fever	2

Brucellosis: At an abattoir six cases of brucellosis were found, one of these being septicaemic.

Typhus Fever: The two cases of typhus fever diagnosed were both located near Geraldton and may be related as a result of a common occupation.

Quality Control

Participation in the Centre for Disease Control (Atlanta, Georgia, U.S.A.) proficiency testing programme is continuing and the Serology Section continued to perform well. Participation in the Australian Royal College of Pathologists' quality control programme also continued.

In parallel, the laboratory runs its own proficiency testing programme and collaborates with the various Departments of Clinical Immunology in the teaching hospitals in the evaluation of antisera used in the diagnosis of patients' complaints.

SEXUALLY TRANSMITTED DISEASE SECTION

There was a marked increase in the number of specimens examined in 1980 which totalled 38,795, an increase of 27% over the 30,564 received in 1979.

With regard to gonorrhoea, 36,096 specimens were examined from 15,069 patients; Neisseria gonorrhoeae was isolated from 623, only 1.7% of specimens.

A disturbing feature is the sharp increase in the number of strains of Neisseria gonorrhoeae which are resistant to penicillin by reason of producing the enzyme Beta lactamase. This year we isolated 26 strains

as compared with 15 in 1979, 8 in 1978, 8 in 1977 and 3 in 1976. Of these 26 cases, 21 of the infections were contracted in Asia, only five being local.

Dark ground microscopy for *T. pallidum* was performed on 264 patients, and *Treponema pallidum* was found in 17 of these.

Among other cases of note was the diagnosis of donovanosis from a twelve year old aboriginal girl at Princess Margaret Hospital.

The Sexually Transmitted Disease Section participates in a nation-wide quality control programme and is assisting in the standardisation of media for the whole Commonwealth.

VIRUS SECTION

The number of specimens received by the Virus Section increased by 7.3% in 1980. This was mainly due to increased requests for chlamydia and herpes simplex culture, and for hepatitis serology. The requests for Hepatitis A IgM tests totalled 1,402 compared with 681 in 1979. New tests for Hepatitis B 'e' antigen and antibody were introduced in 1980 and should prove useful in assessing infectivity of Hepatitis B carriers and possibility of their developing chronic liver disease. ELISA tests were further developed during 1980 and an assay for cytomegalovirus specific IgM antibody was made available, which is of major value in detecting congenital infection with this virus.

Dr. M. Bucens began work in the Virus Section in June 1980 on diagnostic tests for Legionnaires' Disease. At present ELISA tests for antibody to *L. pneumophila* types 1, 2 and 4 have been developed, including specific IgM tests, and direct immunofluorescence and culture methods are available for *L. pneumophila* types 1-4 and for several other legionella species.

Development of tests for virus in water samples had to be postponed due to staff shortages, but it is hoped that this work will be undertaken in 1981.

Outbreaks

Very high rates of herpes simplex virus and chlamydia group A isolations were found throughout the year, mainly in patients attending S.T.D. clinics. Genital infection with adenovirus type 19 first seen in these patients in 1977 continued, and in some patients was associated with eye infection with the virus. There were fairly large outbreaks of rotavirus, Influenza A and respiratory syncytial virus in the winter months.

WATER EXAMINATION SECTION

This section of the State Health Laboratory Services has an important position in the laboratory control of water treatment and laboratory surveillance of water quality. The discovery of two children with primary amoebic meningoencephalitis in late January led to increased sampling. Introduction of techniques evaluated and developed since

June 1978 in these laboratories enabled the additional bacteriology to be performed with marginal increase in staff. Examination of samples for amoebae, temperature tolerance investigations and pathogenicity testing of Naegleria required an additional two technologists and clerical-laboratory assistance during the warmer weather. Samples for amoebic examination: 4,332.

All told there was a 60.3% increase in samples examined. Increased awareness of the inadequacies of standards based on human faecal indicator systems in the possible presence of pathogens has prompted further examination of membranes showing high non-faecal bacterial populations for the presence of Salmonella. Isolation from consumer supply has increased 337.7% whilst Salmonella have been isolated from five treated recreational waters.

Salmonella Recovery	1979	1980
Consumer Supply - including bores and wells	45	152
Treated Recreational Waters	-	5
Primary Collection and Storage - Natural Waters	68	58
	<hr/> 113	<hr/> 215

Because of the installation of chlorinators at outlets from many storage reservoirs examination for pathogens is more difficult and fewer natural waters are now examined. It should be noted that Salmonella recovery from consumer supply has, in several instances, been linked with frank incidence of disease. This is referred to in the Enteric Diseases Section report.

Development

1. Methods were investigated on how best to resuscitate Salmonella organisms that had been damaged by chlorine in water supplies. This has led to a higher and truer recovery rate.
2. Standard plate counts were superseded by membrane techniques which have allowed us to examine a greatly increased number of specimens with minimal staff increases.
3. Branch laboratories now use membrane filtration which allows water to be filtered in local laboratories, who then post on the tiny filter without the expense of transporting large heavy volumes of water to Perth.
4. We now examine water from the homes of children who suffer from enteritis due to the organism Aeromonas. In this way we hope to establish the role of drinking water in this form of enteritis.
5. A survey is being conducted to assess the efficacy of swimming pool sanitizers in keeping domestic pools free from amoebae.

6. A range of drugs has been tested to assess which would be effective in treating children who suffer from meningitis due to amoebae.

POST GRADUATE EDUCATION

Royal College of Pathologists of Australia

The Acting Head of the Division participated in the practical, written and oral examinations.

Western Australian Institute of Technology

Miss R. McAleer participated in a seven week course in Medical Mycology for Post Graduate Microbiology Students.

University of Western Australia

Miss R. McAleer participated in a Post Graduate Seminar on the topic of "Keratinophilic Fungi in Soils in Western Australia".

TOURS AND CONFERENCES

- | | | |
|-------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dr. M. Bucens | : | Visited the Childrens' Hospital, Toronto, to study rotavirus methods in use there and the Veterans' Hospital, Los Angeles, and C.D.C. Atlanta, to study current trends in the diagnosis of Legionnaires' Disease. |
| Dr. M. Bucens and
Mr. G. Harnett | : | Attended the Hepatitis Symposium, Melbourne, March 1980. |
| Miss B. Dunn | : | Visited the Fairfield Infectious Disease Hospital, Tuberculosis Laboratory, September 1980. |
| Dr. A. Henderson | : | One meeting of Committee DS/3 of the Standards Association of Australia (dealing with dairy products) in Melbourne. |
| Mr. J. Jansons | : | Visited the Boliner Water Treatment Works, S.A., and the Fairfield Infectious Diseases Hospital virus laboratory to study methods for the detection of virus in water. |

HONORARY FELLOWSHIPS

Mr. J.B. Iveson was awarded Honorary Fellowship of the Australian Institute of Health Surveyors (Hon. F.A.I.H.S.) during the Annual State Health Surveyors' Conference in Perth during September 1980.

PAPERS PUBLISHED

- | | |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Atkins, R.P.
Iveson, J.B.
Field, R.A. and
Parker, I.N. | : Bulletin No. 74, Department of Conservation and Environment, W.A. July 1980.
A technical report on the water quality of Princess Royal Harbour, Albany. |
| Gracey, M.
Iveson, J.B.
Sunoto and
Suharyono | : Human Salmonella carriers in a tropical urban environment.
Transactions of the Royal Society of Tropical Medicine and Hygiene, Vol. 74, No. 4, 1980. |
| Harnett, G.B. and
Newnham, W.A. | : Isolation of Adenovirus type 19 from the male and female genital tracts.
In Press, British J. of Venereal Disease. |
| McAleer, R. | : "Keratinophilic Fungi on Four Animal Groups"
Aust. Vet. J., Vol. 56, August 1980. |
| | : "Zoophilic Dermatophytes and their Natural Hosts in Western Australia".
Med. J. Aust. 1980, 2: 506-508. |
| | : "Fungal Infection as a Cause of Skin Disease in Western Australia".
Aust. J. Derm. 1980, 21,
Part I Tinea corporis 25 - 32
Part III Tinea barbae 40 - 41. |
| Medley, S.M. | : Acridine Orange: Method for Diagnosis of Amoebic Meningitis.
Med. J. Aust., Vol. 2, 1980. |
| Papadimitriou, J.,
Phillips, P.A. | : The Ultrastructure of Calymmatobacterium granulomatis in Lesions.
J. Infect. Dis. |
| Stuckey, M.S. | : A paper entitled "The Role of the Immunologist in Paediatric Dermatology" at the annual meeting of the Australasian College of Dermatologists. |
| | : A paper entitled "Clinical Relevance of Immune Function Testing" at the 4th International Congress of Immunology, Paris. |
| | : A paper entitled "A New Variant of Combined Immune Deficiency" at the 4th International Congress of Immunology, Paris. |
| | : A paper entitled "Genetic Factors in Allergic Disease" at the annual meeting of the Australian Society for Immunology, Brisbane. |
| | : A paper entitled "Carrier Detection in 21 Hydroxylase Deficiency" at the annual meeting of the Australian College of Paediatricians, Sydney. |

- Stuckey, M.S. : A paper entitled "Distribution of HLA - A,B,C, and DR Antigens in an Australian Population" at the Annual Meeting of the Australasian Tissue Typing Association, Wellington.
- : "HLA Typing and ACTH Stimulation in the Detection of Carriers of 21-Hydroxylase Deficiency", Aust. N.Z. J. Med., 10, 552.

7. COMBINED CLINICAL BIOCHEMISTRY SERVICE

STATISTICS

The Combined Clinical Biochemistry Service responded to the increasing financial pressure during the year by laying off some procedures, by method simplification and by sharing some tests with other laboratories. By these means the work load has been kept down to within 1% of the 1979 level.

STAFF

Dr. Dick presented papers on the variant throxine binding globulin (TBG) in Aborigines at the International Throid Symposium in February in Armidale and at the national meeting of the Australian Association of Clinical Biochemists in Sydney in October. Dr. Bhagat was successful in the examinations for the first part of the F.R.C.P.A. in Chemical Pathology. Dr. Garcia-Webb spent a six month study leave with Professor Alberti in Newcastle-upon-Tyne. Professor Curnow chaired meetings of the IFCC/IUPAC education committee meeting in Boston and finalised international education guidelines for clinical chemistry. He also presented papers at the AACB national meeting and continued to represent AACB on the National Pathology Accreditation Advisory Council.

QUALITY CONTROL

The Service has expanded its participation in external quality control schemes so that almost all its tests are now covered.

TEACHING, RESEARCH AND DEVELOPMENT

The third M.Sc. by coursework started in February with seven students. Staff seminars and tutorials contined at a satisfying level.

Dr. Dick and Mr. Watson expanded the work on thyroxine binding globulin and have shown that the genetic variant observed in some Aborigines is inherited as an autosomal dominant and is due to a structural rather than a regulator gene.

Dr. Garcia-Webb has contined to observe the biochemical changes taking place as non-insulin dependent diabetes develops.

Mr. Fletcher has taken a leading part in the development of computerised telexing of reports which is now routine.

VISITOR

Mr. W. Lockwood, well known porphyrin biochemist from Sydney, spent two weeks with Mr. Rossi working on high performance liquid chromatography of porphyrins.

PUBLICATIONS

"Obesity and Insulin Secretion in Fasting High School Students".
P. Garcia-Webb, A. Bonser, K.L. Wearne and M. Gracey.
Diabetologia 19, 194-197 (1980).

"Provisional Recommendation (1979) on a Scheme for a Two Year Postgraduate Course in Clinical Chemistry".
C.J. Porter and D.H. Curnow.
Clin. Chim. Acta 103, 239F-247F (1980).

Reprinted in:

Clinical Chemistry 26, 1748-1753 (1980) and
J. Clin. Chem. Clin. Biochem. 18, 438-444 (1980).

"Significance of 1,25-Dihydroxyvitamin-D "Receptors" in Normal and Malignant Breast Tissue".

J.M. Fry, D.H. Curnow, R.W. Retallack and D.H. Gutteridge.
Lancet 1, 1308-1309 (1980). Letter to the Editor .

"Distribution and Inheritance of Low Serum Throxine-Binding Globulin Levels in Australian Aborigines". A New Genetic Variation.

F. Watson and M. Dick.
Med. J. Aust. 2, 385-387 (1980).

"Clinical Biochemistry - Principles and Practice".

Plenary Lectures and Symposia, First South East Asian and Pacific Congress of Clinical Biochemistry, Singapore, 14-19 October 1979, pp 1-297.

Edited by Aw Swee Eng and Peter Garcia-Webb.

Published by the Organising Committee, August 1980.

"Vitamin D in Lactation. I. The Localisation, Specific Binding and Biological Effect of 1,25-Dihydroxyvitamin D₃ in Mammary Tissue of Lactating Rats".

J.M. Fry, D.H. Curnow, D.H. Gutteridge and R.W. Retallack.
Life Sciences 27, 1255-1263 (1980).

ABSTRACTS

"Misdiagnosis of Hypothyroidism in Euthyroid Australian Aborigines Due to Low Thyroxine Binding Globulin".

M. Dick and F. Watson

8th International Thyroid Congress, Sydney, February 1980, p. 162.

"Degradation of Somatostatin by the Liver".

J.M. Conlon, P. Garcia-Webb, V. Hammond and J. Whittaker.
Diabetologia 19, 226 (1980).

"The Educated Clinical Biochemist - Product Specifications".
D.H. Curnow.

The Clinical Biochemist, Reviews 1, 69 (1980).

"Inheritance of Low Thyroxine Binding Globulin in Australian Aborigines".

M. Dick and F. Watson.

The Clinical Biochemist, Reviews 1, 75 (1980).

8. COMBINED UNIT OF CLINICAL PHARMACOLOGY AND TOXICOLOGY

INTRODUCTION

The Unit is a combined service of the State Health Laboratory Services and the University of Western Australia Pharmacology Department. It provides both quantitative and qualitative measurements of drugs and other chemicals in biological specimens.

MEDICAL STAFF

Professor J.W. Paterson, M.B., B.Sc., F.R.A.C.P., F.R.C.P. -
Honorary Director of Unit.

Dr. G.M. Shenfield, M.A., D.M., M.R.C.P. -
Senior Lecturer in Clinical Pharmacology.

Dr. J.M. Potter, M.B., B.Sc., Ph.D. -
Lecturer in Pharmacology.

STAFFING

The routine daily work load is largely handled by four chemists. Mr. Langford who was seconded to Health Computing Services in June 1979 returned to the laboratory in July 1980. During the year the laboratory acquired the part-time services of a clerical assistant who now works in the laboratory for 3½ hours each day. This appointment has greatly assisted by relieving highly trained chemists from routine clerical duties and also has enabled a more detailed operational statistics to be collected. The University Department of Pharmacology has continued to provide the half-time assistance of a technician who is involved largely in the research and development of new assay procedures.

WORK LOAD

The total number of specimens received in 1980 showed a 15% rise over the 1979 figures. As pointed out in last year's annual report total numbers of specimens received is not an entirely reliable guide to work load since more than one analysis may be required for any one sample. To overcome this problem, total samples received for 1980

have been subdivided into actual numbers of requests for different drugs either individually or in categories where appropriate. 17,840 assays were performed using the 16,425 specimens received. Although overall samples received show a 15% increase in numbers in 1980 the only individual drug to show a marked increase in numbers was theophylline. This undoubtedly reflects an increased awareness by physicians of the benefits of therapeutic monitoring for this drug. As percentages of the total assays, the various assays may be grouped as follows:-

antiepileptics	42.0%
antiarrhythmics	2.2%
asthmatics	17.7%
antirheumatics	1.6%
alcohol	4.6%
drug screens	4.5%
narcotic scans	17.3%
others	11.1%

Some 69% of all assays were performed using the technique of Enzyme Multiplied Immunoassay Technique (EMIT). The method is very rapid and despite a relatively high reagent cost, for many analyses it continues to be more attractive than other methods such as high performance liquid chromatography because its cost is low in terms of the staff and equipment required.

THERAPEUTIC MONITORING

Samples from this source continue to be an important aspect of service provided by the Combined Unit and accounted for 71% of all assays in 1980.

QUALITY CONTROL OF CLINICAL DRUG ASSAYS

Participation in the quality control scheme run by Professor A. Richens from Cardiff University continues to be of considerable benefit in maintaining high analytical standard for routine assays.

ON-CALL EMERGENCY DRUG SCREENS

A survey of over-time claims for October through December 1980 showed an average of 25 hours over-time per week. 68% of these requests were attributable to the Queen Elizabeth II Medical Centre, 22% to Fremantle Hospital and 10% to Princess Margaret Hospital and others. The numbers of requests for urgent drug screens, particularly from Fremantle Hospital have decreased during the year but to some extent this has been offset by an increase in urgent requests for therapeutic drug monitoring.

RESEARCH AND DEVELOPMENT

1. HPLC assay for narcotic analgesics in plasma. These assays are being developed in co-operation with physicians from the Intensive Care Unit at Q.E. II Medical Centre and are primarily aimed at enabling an evaluation of new low dose morphine

infusion regimens which are being used in preference to traditional high dose intramuscular therapy. A method for pentazocine by HPLC has already been developed and investigations into a similar method for morphine are in progress.

2. An HPLC method for chloroquine and its metabolite hydroxychloroquine has been established. Chloroquine is used in the therapy of some patients with rheumatoid arthritis and it is hoped that measurements of its plasma concentration may be helpful in patient management.
3. Methods have also been developed for the estimation of the radio-contrast medium metrizamide in plasma, urine and milk and a detailed study of the pharmacokinetics of this drug has been undertaken in one patient. A manuscript summarising these findings has been submitted to the British Journal of Radiology.
4. Routine HPLC assays for carbamazepine, phenytoin, phenobarbitone and theophylline, developed in this laboratory have been established and are used to advantage when small numbers of samples make the EMIT assay technique uneconomical.
5. A colourimetric assay procedure for paracetamol which was developed in 1979 has now been disseminated to branch laboratories. It provides a simple and rapid procedure which can be used as an aid in the emergency treatment of paracetamol overdosage.
6. Assay procedures for nitroglycerin and phenol have been set up to assist the pharmacy departments at Sir Charles Gairdner Hospital and Royal Perth Hospital with quality control assessment of locally manufactured parenteral products containing these compounds.

RESEARCH PUBLICATIONS

David, B.M., Madsen, B.W. and Ilett, K.F. (1980).
Plasma binding of disopyramide.
British Journal of Clinical Pharmacology, 9, 614-618.

Ilett, K.F., Hackett, L.P., Paterson, J.W. and McCormick, C.C.
(1980).
Pharmacokinetics of metrizamide during lactation.
Clinical and Experimental Pharmacology and Physiology, (in press).

9. COMBINED HAEMATOLOGY SERVICE

There was an increase of work of 7.5% in the year; this was managed with some difficulty with no increase in staff. During the year, a 24-hour service was established after intervention by the Public Service Board, who conducted an 'organisation' survey. Four staff were involved in this service.

CHANGES IN CONSULTANT STAFF

Dr. P. Crawford, Senior Lecturer in Medicine, University of W.A. and Dr. H.J. Woodliff, Clinical Pathologist to S.H.L.S. Branch Laboratories commenced part-time consultant duties in the Combined Haematology Service. Dr. Kennett was on study leave for most of the year in question.

EXAMINATION RESULTS

Miss Carol Budd (S.H.L.S.) obtained the F.A.I.L.M.S. diploma and Dr. Anne Chester, Haematology Registrar, became a Fellow of the Royal Australasian College of Pathology. Dr. Kennett spent twelve months on Study and Long Service Leave in the United Kingdom during 1980 and obtained the M.R.C.P. (U.K.) and M.R.C. Path qualifications by examination during that time.

NEW TESTS

Ristocetin Co. Factor (Von Willebrand Factor) and Anti Thrombin III by immunoelectrophoresis. Further developmental work on isotopic assay of serum B12. Combined serum B12 and folate assays came into routine use.

COMPUTERISATION

The department has a Hewlett Packard bench top computer and during 1980 Quality Control Programmes and Laboratory Statistics all became fully computerised.

10. HISTOPATHOLOGY AND MORBID ANATOMY

The work load in Histopathology showed an increase during the year of 4.5%, but the department continued running smoothly. Delays in reports being received in country areas were mainly postal in nature. Consequently arrangements were completed to telex histopathology reports to these areas. A word processor was installed to cut down typing time and produce a uniform format of report, this obviated typing reports twice as the machine was telex compatible. Naturally no report is sent until signed by the responsible pathologist. Security is ensured by using the unique accession number and the patient's initials only on the telex report; fuller details are inserted on arrival at the destination.

The problem of paraffin block storage was overcome by the installation of compactor system filing cabinets.

The use of the frozen section van was discontinued as the metropolitan hospital laboratories and the laboratories at Northam and Pinjarra have now been equipped with cryostats.

Biopsies from the Wanneroo and Osborne Park Hospitals are now being initially dealt with at Osborne Park before being transferred to the Central Laboratory for processing and sectioning.

STAFF CHANGES

Dr. Grant Pattison	-	Resigned 31/1/80
Dr. A.M.K. Laden	-	Resigned 16/5/80
Dr. V. Caruso	-	Appointed 20/10/80
Dr. J.A. Pollard	-	Transferred to Bunbury 1/11/80

11. COMBINED CYTOLOGY SERVICES

In 1980 at the request of the Medical Department through the Laboratory Users' Liaison Committee, a combined cytology service was formed by the integration of the State Health and the Hospital and University cytology services. This move has resulted in a greater flexibility for both State Health and Hospital work and improved educational opportunities for technical staff. It is hoped that the combined system would prove to be more cost effective.

STAFFING

The unit at the end of 1981 will be composed of 13 staff - one medical technologist-in-charge level III, one medical technologist level I, two senior cytotechnicians, six cytotechnicians and three trainee cytotechnicians. Since the formation of the unit there have been four resignations; Mrs. D. Lawrence, Miss A. Knowles and Miss J. Clarke joined the staff as trainee cytotechnicians and Miss G. Digney as a cytotechnician.

Two senior cytotechnician posts have been established by the elevation of two experienced cytotechnical staff. This has facilitated the work flow and training of junior staff.

Filing and typing of reports was carried out by one clerk-typist. The work load in this area was high and there were difficulties in providing the service on this basis. The need for further clerical assistance was obvious, and ways of overcoming the problem are under discussion.

Day-to-day overall senior laboratory and professional supervision was provided by the Hospital and University Pathology Services staff. The pathologists' supervision was arranged according to a single combined roster.

EDUCATION

Three staff are currently enrolled for the Certificate in Cytology and three for the Diploma in Cytology which was introduced in 1980 by the Mount Lawley Technical College. Miss G. Digney, Miss C. Edwards and Mrs. C. Rankine were successful in the examination of the Australian Society of Cytology (C.T.A.S.C.) and in the examination organised by the International Academy of Cytology in Melbourne in 1980 (C.T.I.A.C.).

In 1980 a weekly cytology review session was instituted, to allow maximum exposure of more junior members of the staff to interesting

and important cytological material. Some of the more senior staff presented reviews of various important topics in cytology. This session will be continued in 1981.

WORK LOAD

The figures for the number of cases and slides seen during the year are listed in the table below. There was an increase in total slides received by the State Health Laboratory Services by 5.7%, though the number of cases decreased by 2% as compared to 1979. The increase in slides is in part attributable to the increase of 7.8% in sputum specimens, requiring more slide preparation. For Sir Charles Gairdner Hospital there was an increase by 10.39% in the number of cases and 19.49% in the number of slides.

	No. of Cases	No. of Slides
State Health Laboratory Services	23,664	31,046
Hospital & University Pathology Services	4,348	19,065
Combined Cytology Services	28,012	50,011

RESEARCH

Several research projects were in progress in 1980.

1. The value of the cytological study of bronchial lavage specimens obtained at the time of fiberoptic bronchoscopy was being studied in conjunction with the Department of Respiratory Medicine. This technique holds some promise in the diagnosis and follow up of diffuse/interstitial lung disease.
2. A study of the value of cytological examinations of peritoneal fluid obtained at laparoscopy was in progress. This is to be evaluated as a possible method of diagnosis or follow up of pelvic inflammatory disease. Dr. Gary Hastwell, a gynaecologist in private practice, initiated the study and provided specimens.

WORKSHOPS/CONFERENCES

Dr. G. Sterrett and Mr. D. Whitaker attended a workshop on Aspiration Cytology in Adelaide in November 1980. This was organised by Dr. Svante Orell of Flinders University Pathology Department under the auspices of the South Australian Medical Education Association and the College of Pathologists of Australia. Dr. Sterrett presented papers on the aspiration cytology of lung and thyroid and Mr. Whitaker and Dr. Sterrett conducted the workshops in these organs. The visit was funded by the State Health Laboratory Services.

Mr. D. Whitaker attended the Annual General Meeting of the Australian Society of Cytology in Sydney in 1980 and presented papers on (1)

The training of cytotechnologists in Western Australia, and (2) The cytology of sputum in Bronchopulmonary Aspergillosis.

Dr. Sterrett presented a paper on the Aspiration Cytology of Prostatic Carcinoma to the February meeting of the W.A. Branch of the Australian Society of Cytology.

PUBLICATIONS

Whitaker, D., Papadimitriou, J.M., and Walters, M.N-I.
The Mesothelium Techniques for investigating the origin nature and behaviour of mesothelial cells.
Journal of Pathology, 132:263-271 (1980).

Whitaker, D., Papadimitriou, J.M., and Walters, M.N-I.
The Mesothelium. A histochemical study of resting mesothelial cells.
Journal of Pathology, 132:273-284 (1980).

Whitaker, D., Reed, W.D., and Shilkin, K.B.
A case of filariasis diagnosed on gastric cytology.
Pathology, 12:483-486 (1980).

Whitaker, D. and Shilkin, K.B.
The cytology of malignant mesothelioma in Western Australia.
Year Book of Cancer. Year Book of Medical Publishers Inc.,
Chicago (1979). Eds. Clarke, R.E., and others. pp. 426-428.

12. FORENSIC SERVICES

FORENSIC PATHOLOGY

During the year 1,211 post mortem examinations were performed by doctors practicing in this department. Of these, 366 deaths were brought about by causes other than natural disease. Road traffic accidents accounted for 202 deaths and this was the most common mechanism of violent death. In 134 instances death was attributed to suicide. Industrial accidents claimed 15 lives and there were 15 homicides.

The country component of the work load diminished significantly in the year, largely due to technical assistance offered to doctors practicing in country districts by necropsy technicians stationed at Bunbury, Port Hedland and Derby. Some containment of travel costs was achieved because of these technicians' presence in the country.

STAFF CHANGES

There were no medical staff changes during the year.

Mr. A. Wight joined the technical staff in the State Mortuary and completed his certificate course.

TEACHING

Members of the medical and technical staff participated in the teaching of police - recruits, uniform branch personnel and detectives - medical students and para-medical personnel.

CONFERENCES, PUBLICATIONS AND RESEARCH

Further research into the Sudden Infant Death Syndrome continued in co-operation with colleagues in this and other medical institutions. Studies into certain vitamin levels in S.I.D.S. and non-cot death babies produced some interesting preliminary results. Support and counselling of bereaved parents continued as did educational activities among the various lay groups. Dr. Hilton, Dr. Richard Davis (R.P.H.) and Mr. Daniel Hoffman (medical student) attended the 3rd National Meeting of the S.I.D.S. foundation in Adelaide in October, where papers were read on thiamine levels in young infants and the epidemiology of S.I.D.S. in Western Australia. The management of this problem in Western Australia continues to draw favourable comment from other States.

Dr. Hilton, in conjunction with Drs. David E. Davies and Kenneth I. Digwood published a paper in the Medical Journal of Australia on "Air Embolism During Caesarean Section".

Dr. Pocock was an invited speaker at the first Conference of the Association of Australian and Pacific Areas Police Medical Officers in March (not under departmental auspices).

Dr. Pocock published the following papers:-

'Deaths in Custody'.

Journal of the Association of Police Surgeons of Great Britain.

'The Severity of Drunken Driving as Perceived by Drunken Drivers'.

Accident Analysis and Prevention, Vol. 12, pp. 105-111,
Pergamon Press.

FORENSIC BIOLOGY

The number of items received for examination increased by 10% over last year. Most were from the Police Department with some items from authorities such as the Fisheries and Wildlife and from various local councils. The range of tests remained much the same as in the previous year.

In addition to the presentation of a number of reports in Courts throughout the State, a Court appearance was made at a murder trial in New Delhi in India. The findings made relating to bloodstains on a ship in Fremantle Harbour in 1978 were presented by a Senior Technologist from this section, at the request of the Indian Government.

During the year talks and demonstrations were given to a number of Detective Training Schools, to the members of the Prosecution Section of the Crown Law Department and to doctors and staff at the Sexual

Assault Referral Centre at the Queen Elizabeth II Medical Centre.

13. CYTOGENETICS UNIT

WORK LOAD

1,729 specimens were referred for cytogenetic analysis. This represents a total increase of 10% on the 1979 specimens. Of these, 499 specimens were amniotic fluid for pre-natal diagnostic monitoring, again representing an increase of 10% on the previous year's work load. The number of bone marrow specimens subjected to cytogenetic analysis increased from 23 in the year ended 1979 to 74 in the current year.

NEW TECHNIQUES

A rapid direct method of bone marrow examination is presently being developed and it is hoped to encourage further referrals of bone marrow specimens by use of this method.

TEACHING

As in previous years, lectures and demonstrations have continued to medical students, post-graduate nurses, post-graduate education students and high school students. Lectures are also routinely given to doctors from the Department of Community Health and to the Registrars participating in the Paediatric post-graduate programme at Princess Margaret Hospital.

VISITORS

Professor Eva Alberman, Professor of Clinical Epidemiology, the London Hospital Medical College, spent some time in the Unit. Her main interest has been in the monitoring and cost benefit analysis of pre-natal diagnostic tests and her interest in this Unit centred on the computerised registry kept of all pre-natal diagnoses attempted in Western Australia.

PUBLICATIONS

Two papers have been published:-

1. 'Where is the gene for GAST'.
Human Genetics, 54, 129-130 (1980).
2. 'Chromosome Aberrations and Agent Orange'.
Med. J. Aust., 2, 573-574 (1980).

RESEARCH GRANT

A joint application by Dr. Peter Silberstein, Mr. G. Wilson and Dr. M. Mulcahy for funds to carry out a pilot study on patients with Friedreich's ataxia has resulted in a grant of \$4,500. Approximately \$4,000 of this grant is for work which will be done in the Cytogenetics Unit.

SEMINAL ANALYSIS

During 1980, 521 specimens were received for seminal analysis.

The proposed experimental work on sperm survival (see 1979 report) did not eventuate and the mean turn around time of specimens, which is in excess of seven days, should be improved.

PROPOSED DEVELOPMENTS

1. The long-awaited arrival of the CO₂ incubator should enable the introduction of new techniques for the culture of amniotic fluid cells. Assuming the arrival of culture vessels this will be attempted in 1981.
2. It is proposed to develop a new improved rapid technique for GTG banding. If this proves satisfactory the work flow within the laboratory should be much improved.

STAFFING

Some operational changes planned for 1981 should improve laboratory efficiency but it is essential that formalised restructuring of the staffing levels be considered if there is to be any incentive for staff to remain in this Unit.

TABLE I A

STATE HEALTH CENTRAL LABORATORIES (INCLUDING COMBINED UNITS)

SPECIMENS ANALYSED AND AUTOPSIES PERFORMED1980

	1980	1979	% Change
Clinical Bacteriology	12,053	11,671	+ 3.27
Virology	44,664	41,632	+ 7.28
Mycology	11,865	10,172	+ 16.64
Mycobacteriology	9,133	9,966	- 8.36
Sexually Transmitted Diseases	38,795	30,564	+ 26.93
Clinical Enteric Section	15,888	19,410	- 18.15
Parasitology	14,382	13,702	+ 4.96
Foods	4,387	4,784	- 8.30
Waters Laboratory	24,250	15,129	+ 60.29
Environmental Laboratory	18,529	24,596	- 24.67
Phage Typing	6,711	5,113	+ 31.25
Total Microbiology	200,657	186,739	+ 7.45
Biochemistry (including Radioisotopes)	168,910	167,199	+ 1.02
Toxicology	16,425	14,272	+ 15.09
Haematology	87,339	81,225	+ 7.53
Serology	55,913	53,802	+ 3.92
Cytogenetics	2,250	1,641	+ 37.11
Histopathology	20,710	19,810	+ 4.54
Cytology	23,664	24,137	- 1.96
Autopsies	1,251	1,249	+ 0.16
Total Pathology	376,462	363,335	+ 3.61
GRAND TOTAL	577,119	550,074	+ 4.92

TABLE I B

STATISTICS - BRANCH LABORATORIES

1979 - 1980

BRANCH	1980	1979	% CHANGE
Albany	19,404	16,256	+ 19.37
Armadales	4,958	3,414	+ 45.23
Broome	5,170	5,196	- 0.50
Bentley	9,086	7,044	+ 28.99
Bunbury	16,098	13,609	+ 18.29
Busseleton	9,826	7,833	+ 25.44
Carnarvon	8,907	7,020	+ 26.88
Collie	4,473	3,177	+ 40.79
Dampier	9,268	8,348	+ 11.02
Derby	21,615	16,097	+ 34.28
Esperance	5,744	5,341	+ 7.55
Geraldton	35,937	27,784	+ 29.34
Katanning	4,971	4,262	+ 16.64
Kalamunda	2,522	2,618	- 3.67
Kununurra	*	86	
Manjimup	11,300	9,443	+ 19.67
Merredin	9,320	8,394	+ 11.03
Mount (Jan - May 1980)	1,793	4,381	-
Narrogin	15,395	14,182	+ 8.55
Newman	525	379	+ 38.52
Northam	9,051	9,226	- 1.90
Osborne Park	21,171	18,265	+ 15.91
Pinjarra	13,072	13,576	- 3.71
Rockingham	12,871	8,943	+ 43.92
Port Hedland	21,568	19,171	+ 12.50
Swan Districts	14,047	14,205	- 1.11
Tom Price	3,493	3,084	+ 13.26
Wyndham	7,274	8,070	- 9.86
Wanneroo (Aug - Dec 1980, 1st yr)	1,253	-	
	300,112	259,404	+ 15.69

TABLE II A

CLINICAL BACTERIOLOGY - SPECIMENS 1980

	1980	1979	% Change
Medical Practitioners	1,498	1,734	- 13.6
Country Hospitals	1,229	1,645	- 25.3
Metropolitan Hospitals	1,039	917	+ 13.3
Mental Health Services	507	791	- 35.9
Department of Corrections	903	1,009	- 10.5
Family Planning Association & Women's Health & Community Centre	2,150	2,166	- 0.7
Special Treatment Clinic Q.E. II	2,595	2,238	+ 16.0
Sexual Assault Referral Centre	203	175	+ 16.0
Aboriginal Medical Service	431	461	- 6.5
Forensic etc.	147	157	- 6.4
Referred Cultures	331	378	- 12.4
Others	1,020	-	-
TOTAL:	12,053	11,671	+ 3.27

TABLE II B

SEXUALLY TRANSMITTED DISEASES - SPECIMENS 1980

	1980	1979	% Change
Specimens for N. gonorrhoeae	36,096	28,759	+ 25.5
No. Positive	618	1,668	
% Positive	1.7	5.8	
Specimens for Syphilis (D.G.I.)	264	354	- 25.4
No. Positive	17	19	
% Positive	6.4	5.4	
Other	2,435	1,451	+ 67.8
TOTAL SPECIMENS:	38,795	30,564	+ 26.9

TABLE IIC

PUBLIC HEALTH ENTERIC DISEASES UNIT - SPECIMENS 1980

Laboratory Sections	Specimens	State PHD/SHLS	Common-wealth	Local Health	MWSSD	CTWS	Public Hospital	Private Service	Other	Totals	Positive for Pathogens
CLINICAL ENTERIC BACTERIOLOGY SECTION	Human faeces Cultures referred (Human)	12,190 444	1,855 10	946 2			29 128	165 119		15,185 703	1,374 568
	TOTAL	12,634	1,865	948			157	284		15,888	1,942
PARASITOLOGY SECTION	Faeces Skin Scrapings Parasites for identif.	14,360 13 9								14,360 13 9	2,019 4 8
	TOTAL	14,382								14,382	2,031
FOOD HYGIENE SECTION	Foodstuffs	2,011	1,031	1,304					41	4,387	830
	TOTAL	2,011	1,031	1,304					41	4,387	830
WATERS SECTION	Water Supplies (distrib) Bores and Wells Reservoirs and Tanks Swimming Pools	475 38 88 422	1,709 114 22 17	3,939 667 729 4,093	6,509 259 1,418 1	2,982 87 665 16				15,614 1,165 2,922 4,549	494 56 313 564
	TOTAL	1,023	1,862	9,428	8,187	3,750				24,250	1,427
ENVIRONMENTAL SECTION	Sewerage Water & Drains Abattoir & Meat Process Natural Waters & Soil Water catchment & Supply Animals Cultures referred (Environment)	263 499 2,615 36 2,844 67	38 2	382 137 1,186 77 27	1,372 308 5,616 1	128 12 57 853			475 96	2,183 648 4,166 6,584 3,347 1,601	377 288 244 718 521 1,470
	TOTAL	6,324	40	1,809	7,297	1,050		1,438	571	18,529	3,618
ENTERIC DISEASES UNIT GRAND TOTALS		36,374	4,798	13,489	15,484	4,800	157	1,722	612	77,436	9,848

TABLE II D

MYCOBACTERIA - SPECIMENS 1980

Queen Elizabeth II Medical Centre	3,070
Perth Chest Clinic	1,117
Repatriation General Hospital and Kalgoorlie	906
Others	3,432
Cultures Referred	146
Smears for M. leprae	462
TOTAL	9,133
Positive Specimens - Mycobacteria Atypical	536
Positive Specimens - M. tuberculosis/M. bovis	213
TOTAL:	749

TABLE II E

MYCOLOGY - SPECIMENS 1980

	1980	1979	% Change
Total Specimens	11,865	10,172	+ 16.64
Total Specimens Positive	3,940	3,674	
Specimens Positive %	33.2	36.12	
Total Skin Scrapings	6,562	6,394	+ 2.63
Total Skin Scrapings Collected by Mycology	3,847	3,778	+ 1.83

TABLE II F

VIROLOGY - SPECIMENS 1980

Specimens for Isolation	Positive Isola- tions	Specimens for Rubella	Specimens Viral Serology	Positive Serology	Sera for Hepatitis	Survey etc.	Total Specimens
23,432	3,001 (12.8%)	11,480	4,277	569 (13.3%)	5,397	78	44,664

Tests and Results on 5,397 sera tested for Hepatitis

	No. of Tests	% Positive
Hepatitis A IgM	1,402	16.5
Hepatitis B surface antigen (HB _s Ag)	5,377	3.1
Anti-HB _s Ag	1,821	
Anti-HB _c Ag	907	
HB _e Ag	78	
Anti-HB _e	78	

TABLE III

CLINICAL BIOCHEMISTRY - CANADIAN WORK UNITS 1980

Sir Charles Gairdner Hospital	In-patients	1,197,146	
" " " "	Out-patients	<u>561,261</u>	
" " " "	TOTAL:		1,758,407
State Health Laboratory Services			1,027,911
Commonwealth Instrumentalities			120,553
Surveys, Research etc.			<u>69,502</u>
TOTAL REQUESTED:			<u>2,976,373</u>
Standards etc.			<u>897,368</u>
TOTAL WORK UNITS:			<u><u>3,873,741</u></u>
Increase in work over 1979 =			1.02%

TABLE IV

COMBINED UNIT OF CLINICAL PHARMACOLOGY & TOXICOLOGYSPECIMENS 1980

	1980	1979	% Change
<u>CLINICAL</u>			
Drugs	14,377	12,342	+ 16.49
Alcohol	279	161	+ 73.29
Pesticides	412	563	- 26.82
Miscellaneous	665	554	+ 20.04
<u>FORENSIC</u>			
Drugs	209	211	- 0.95
Alcohol	483	441	+ 9.52
TOTAL	16,425	14,272	+ 15.09

TABLE V

HAEMATOLOGY - SPECIMENS 1980

	1980	1979	% Change
Sir Charles Gairdner Hospital	64,936	60,490	+ 7.35 .
State Health Laboratory Services	20,370	18,734	+ 8.73
State Health Laboratory Services' Surveys	1,564	1,474	+ 6.11
University & Repatriation General Hospital	469	527	- 11.01
TOTAL:	87,339	81,225	+ 7.53

TABLE VI A

HISTOPATHOLOGY & MORBID ANATOMY - SPECIMENS 1980

	1980	1979	% Change
Autopsies - Forensic	1,251	1,249	+ 0.16
Surgical Biopsies	20,710	19,810	+ 4.5
Blocks Cut (Autopsies)	18,467	19,570	- 5.6
Blocks Cut (Biopsies)	47,346	45,219	+ 4.7
Frozen Sections (Biopsies)	531	435	+ 22.1

TABLE VI B

CYTOLOGY - SPECIMENS 1980

	1980	1979	% Change
Cervical	22,008	22,507	- 2.2
Sputa	1,123	1,042	+ 7.8
Miscellaneous	533	588	- 9.4
TOTAL:	23,664	24,137	- 2.0

TABLE VII A

SEROLOGY - SPECIMENS 1980

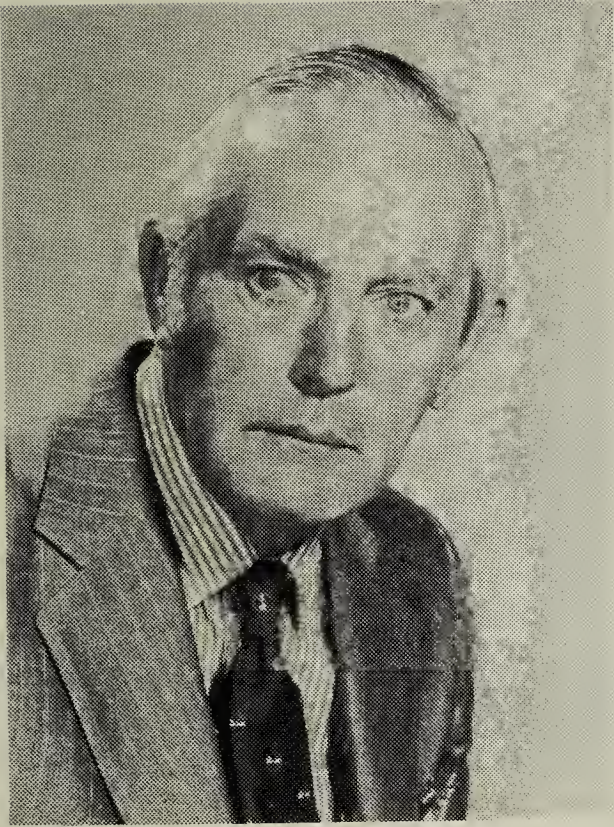
	1980	1979	% Change
Treponemal Serology	43,701	39,350	+ 11.1
Bacterial Serology	4,493	4,098	+ 9.6
Viral, Rickettsial, Helminthic & Protozoal Serology	2,812	3,086	- 8.9
Auto antibodies	-	2,842	-
Others	4,093	3,539	+ 15.7
Hormone Serology	814	887	- 8.2
TOTAL:	55,913	53,802	+ 3.9

TABLE VII B

CYTOGENETICS - SPECIMENS 1980

	1980	1979	% Change
Chromosome Analysis	1,729	1,577	+ 9.6
Seminal Analysis	521	(part year) 64	-
TOTAL:	2,250	1,641	+ 37.1

Appendix III
CHEST AND TUBERCULOSIS SERVICES

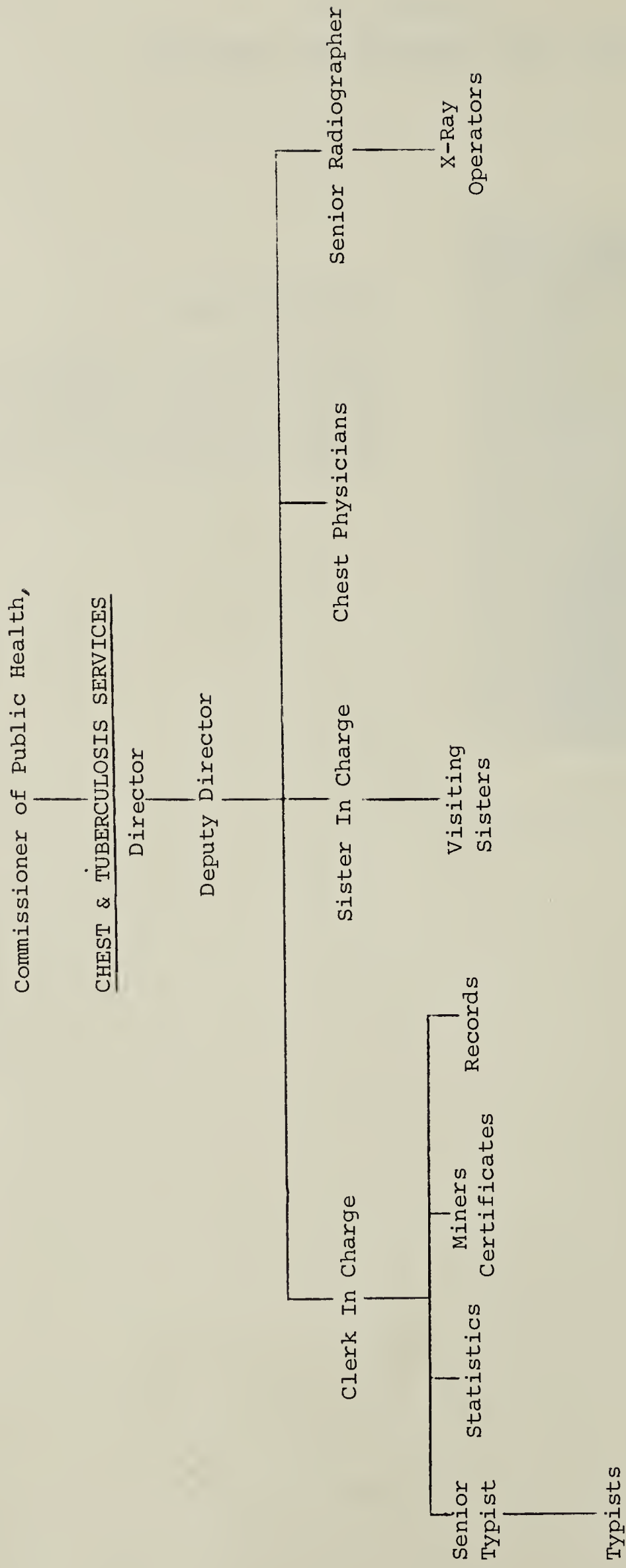


J.T. Cassidy,
M.D., F.R.C.P., F.R.A.C.P.
Director

SENIOR STAFF

Director: Dr. J.T. Cassidy
Deputy Director: Dr. H.S. Chan
Sister in Charge: Sister H. Gilgan
Senior Radiographer: Mr. R. Ward
Clerk in Charge: Mr. R. Fryer

CHEST AND TUBERCULOSIS SERVICES - ORGANIZATION CHART



CHEST AND TUBERCULOSIS SERVICES BRANCH

The work load for the year showed no great variation from 1979.

The figures are as follows:

	1979	1980
Attendances at—		
Perth Chest Clinic	12,533	11,436
Fremantle Chest Clinic	1,981	1,924
Kalgoorlie Chest Clinic	118	94
Examinations at Graylands Hospital	1,015	973
Domiciliary Assessment	35	32
	15,682	14,459
Country Chest X-Ray Film Readings—		
Chest Clinic Requests	931	815
Other	11,145	13,878
	12,076	14,693
Sisters Home Visits—		
Supervision of anti-T.B. Drug Therapy	2,657	2,448
Other Visits to Patients on T.B. Register	665	865
Non T.B. Chest Patients	1,390	1,275
	4,712	4,588

TUBERCULOSIS

NOTIFICATIONS

The incidence rate for 1980 for new cases (per 100,000) of the population was 12.4 as compared with an incidence rate of 13.7 in 1979. Incidence of new cases per 100,000 of the population 1978 11.7; 1979 13.7 and 1980 12.4. A total of 167 patients were notified consisting of 157 new cases, two transferred and eight with reactivation of previous disease.

The sex ratio for pulmonary disease showed a male preponderance of about a 2:1 ratio.

The notifications included 98 who were born outside Australia - 44 of the latter being Vietnamese.

There were 140 cases of active pulmonary T.B. on the Register at the end of the year.

The change in the extent of disease since 1973 when compulsory mass x-rays were phased out is shown and no significant fluctuation is noted.

	PLEURAL EFFUSION	MINIMAL	MODERATE	ADVANCED
1973	4.6	40.9	41.8	12.7
1974	6.7	34.6	46.2	12.5
1975	0.9	42.2	42.2	14.7
1976	2.4	39.8	38.5	19.3
1977	1.8	42.0	48.2	8.0
1978	0.7	52.5	38.0	8.8
1979	1.6	44.5	39.8	14.1
1980	1.5	57.4	32.3	8.8
Average 1973-1980	2.5	44.2	40.9	12.4

NON-PULMONARY TUBERCULOSIS

Non-Pulmonary notifications for the year were 31 including 10 atypicals.

BACTERIOLOGY

66 of the 129 new pulmonary cases were bacteriologically positive. 50 of these being positive for M T.B.

Bovine organisms were recovered from one non-pulmonary case - Otis Media.

18 patients had organisms resistant to one or more drugs, 3 had organisms resistant to INH and 4 organisms resistant to Rifampicin. Multiple resistance involving 2 major drugs occurred in 3 patients, one being resistant to Strep. and Rifampicin and 2 Strep. and Isoniazid. All 3 of these patients have come from outside Australia. One disturbing feature in this group was the discovery that a patient treated at the age of 8 with Isoniazid prophylaxis for 1 year had organisms completely resistant to Isoniazid. He was a contact of his step-sister at that time and she had bacteriologically positive pulmonary P. T.B. Sensitivity tests on her organisms at the time, however, showed that they were fully sensitive to INH.

SOURCE OF CASES

Again a large proportion of these - 44 were discovered by examinations of Vietnamese refugees. One case was discovered at post mortem.

REACTIVATIONS

Of the 8 reactivations none of them could be said by present day standards to have received adequate chemotherapy in the past. Six of these cases were in fact migrants and most had their initial treatment approximately 30 years ago. No case therefore that had received what we now consider

adequate treatment reactivated.

ATYPICAL TUBERCULOSIS

26 of the notifications were for atypical tuberculosis. Of these six were cases of cervical adenitis all caused by Group III organisms. One was a knee infection caused by *M. kansaii* and one was a skin infection caused by *M. marinum*. Of the lung infections all were caused by *M. intracellulare* except two caused by *M. kansaii*. One skin infection in an immunosuppressed renal transplant case was caused by *Mycobacterium haemophilum* first described by Sompolinsky in 1978. As far as I know this is the first time that this particular mycobacterium has been isolated in Australia.

MIGRANTS AND REFUGEES

1332 Vietnamese migrants arrived during 1980 compared to 962 for the previous year. As already stated, 44 of these refugees were notified. This figure has remained largely unchanged over the past three years. Most of these Vietnamese Refugees that were notified were in fact already established on treatment before arriving in Australia.

TREATMENT

126 cases were admitted to the Tuberculosis Ward of the Sir Charles Gairdner Hospital, a significant decrease on the 1979 figure of 164. The average length of stay in hospital in 1980 was 30 days compared to an average of almost 41 for the previous year.

PREVENTION

Epidemiological tuberculin testing was carried out as usual on 10 to 14 year olds and 15 to 19 year olds. The percentage of positive reactors was 1.81 and 1.61 respectively, this compares with a 6.2% positive reactors in the 10 to 14 age group in 1979. Nearly all the positive Heafs in the non-vaccinated group were a Grade I or Grade II. A total of 18,331 children were given B.C.G. 16,687 by direct vaccination. There were no complications. Mass x-rays were continued during 1980 and the mobile unit visited various local Government areas. A total 23,403 persons were examined and five cases of tuberculosis were discovered giving a yield of .2 per thousand persons. 610 of those x-rayed had other significant abnormalities including 19 with changes suggestive of carcinoma.

MINES MEDICAL SECTION AND OCCUPATIONAL HEALTH

A total of 9,451 x-ray examinations were carried out in respect of the mining industry as follows:

	New Applicants	Re-examinations	Total
Perth Chest Clinic	2,839	1,269	4,108
Kalgoorlie Chest Clinic	916	693	1,609
Mobile Unit	275	3,459	3,734
	4,030	5,421	9,451

The Pneumoconiosis Board held 21 sessions at the Perth Chest Clinic and 6 at the Kalgoorlie Chest Clinic and examined a total of 185 persons.

Mine surveys were carried out at:

"B" class quarries, the Pilbara area, Industrial/Sandblasters and James Hardie Ltd.

RESPIRATORY DISEASES PROGRAMME

The Visiting Asthma Nurse and one of our sisters in the respiratory diseases section carried out the following visits:

Visits - initial	77
follow-up	928
Group discussions and lectures	31
Camps	2
Country trips	2
Hospital Team Meetings	83

Referrals to the Asthma Nurse came from the following sources:

Asthma Foundation	13
General Practitioners	5
Specialist Physicians	48
Community & Child Health Sisters	2
Self-referral	4

This service to asthma sufferers is much appreciated by them.

In this programme we have also the services of a physiotherapist who attends for three sessions per week.

In 1980 182 patients received treatment totalling in all 1146 units of treatment.

The respiratory diseases programme has proved very useful and undoubtedly has kept many patients from having to be hospitalised.

The position in Western Australia as regards the incidence rate for new cases of 12.4 must be regarded as satisfactory in view of the relatively large influx of refugees. To get below this figure is going to be extremely difficult.

Many of our cases now are old and when discovered may have had active and infectious tuberculosis for years. Beyond re-introducing the publicly

unacceptable compulsory MMR scheme for those aged 45 years and over, it is difficult to see what one can do about it.

TABLE 1.
TUBERCULOSIS - MAIN STATISTICAL FIGURES

Year	Mean Popu- lation 1,000s	NOTIFICATION (INCLUDES TRANSFERS-IN)				No. on Register (Pulm.) at 31st Dec	No. on Register per 100,000 (Pulm.)	Number Receiv- ing TB Allow- ance at 31st Dec	DEATHS			DEATH RATE PER 100,000	
		Pulm. (incl. Pleural effus.)	Non- Pulm	Total	Pulm. per 100,000				Pulm	Non- Pulm	Total	Pulm	All Forms
1950	558	586	18	604	104.8	2,100	376	515	125	3	128	22.4	22.9
1951	580	467	37	504	80.4	2,402	413	474	76	6	82	13.1	14.1
1952	601	508	49	557	84.5	2,574	428	396	75	7	82	12.5	13.6
1953	621	378	34	412	60.6	2,762	445	361	43	3	46	6.9	7.4
1954	640	348	34	382	54.3	2,769	432	326	57	4	61	8.9	9.5
1955	659	413	39	452	62.7	2,965	450	330	31	2	33	4.7	5.0
1956	677	424	44	468	62.6	2,900	428	264	43	3	46	6.3	6.8
1957	692	332	32	364	47.9	2,786	403	198	36	1	37	5.2	5.3
1958	706	355	24	379	50.3	2,726	386	213	22	4	26	3.1	3.4
1959	726	320	34	354	44.1	2,684	369	182	24	-	24	3.3	3.3
1960	731	296	34	330	40.5	2,388	327	148	29	1	30	4.0	4.1
1961	737	209	41	250	28.4	1,349	183	89	18	1	19	2.4	2.6
1962	755	243	25	268	32.2	1,333	177	90	24	4	28	3.2	3.7
1963	773	216	28	244	27.9	1,218	158	92	13	-	13	1.7	1.7
1964	790	176	32	208	22.3	1,221	154	88	20	-	20	2.5	2.5
1965	806	153	25	178	19.0	919	114	65	12	-	12	1.5	1.5
1966	836	134	36	170	16.0	840	100	64	16	-	16	1.9	1.9
1967	877	137	34	171	15.6	814	93	54	9	1	9	1.0	1.0
1968	910	145	37	182	15.9	680	75	44	8	-	8	0.9	1.0
1969	947	133	27	160	14.0	659	70	43	8	-	8	0.8	0.8
1970	983	113	35	148	11.5	653	67	32	10	-	10	1.0	1.0
1971	1,029	113	30	143	11.0	625	61	27	17	2	19	1.6	1.8
1972	1,053	125	30	155	11.9	569	54	40	8	-	8	0.8	0.8
1973	1,068	110	36	146	10.3	522	49	15	11	-	11	1.0	1.0
1974	1,090	104	36	140	9.5	480	44	17	8	1	9	0.7	0.8
1975	1,127	102	36	138	9.1	460	41	29	10	2	12	0.9	1.1
1976	1,145	83	27	110	7.3	437	38	13	4	-	4	0.4	0.4
1977	1,183	112	43	155	9.5	424	36	13	7	1	8	0.6	0.7
1978	1,222	137	28	165	11.2	442	36	24	8	-	8	0.7	0.7
1979	1,233	128	51	179	10.4	453	37	14	8	-	8	0.6	0.6

TABLE 2

CASES OF TUBERCULOSIS NOTIFIED AND NUMBER BACTERIOLOGICALLY PROVEN 1969 - 1980

(Excludes Inter-State Transfers In, Reactivations and Cases Caused by Atypical Mycobacteria)

Year	Pulmonary	No +ve	Non- Pulmonary	No +ve	Total	Total +ve
1968	104	74	25	12	129	86
1969	90	63	17	6	107	69
1970	75	52	25	10	100	62
1971	89	68	21	9	110	77
1972	100	72	17	8	117	80
1973	92	60	20	15	112	75
1974	80	61	26	17	106	78
1975	77	57	26	16	103	73
1976	64	46	21	11	85	57
1977	76	45	32	9	108	54
1978	104	60	20	10	124	70
1979	109	64	34	12	143	76
1980	113	49	19	7	132	56

TABLE 3
PULMONARY TUBERCULOSIS

Year	Population in 1,000s	Notifications Received	Incidence Rate per 100,000 Population	Deaths Registered	Mortality Rate per 100,000 Population
1911	287	259	90.2	190	66.2
1912	301	429	142.5	220	73.1
1913	313	424	135.5	206	65.8
1914	323	353	109.3	229	70.9
1915	321	336	104.7	233	72.6
1916	313	511	163.5	225	71.9
1917	306	464	151.6	217	70.9
1918	308	432	140.5	245	79.5
1919	320	467	145.9	289	91.6
1920	330	442	139.9	259	78.4
1921	334	424	126.9	277	82.9
1922	341	387	113.8	256	75.1
1923	351	361	102.8	216	61.5
1924	363	381	104.6	228	62.8
1925	373	403	108.4	259	69.4
1926	381	415	108.2	252	66.1
1927	392	409	104.3	231	56.4
1928	408	395	96.8	282	69.1
1929	421	400	95.0	245	53.4
1930	429	569	132.6	218	50.8
1931	432	372	86.1	223	51.6
1932	435	339	77.9	203	46.7
1933	439	295	67.2	207	47.2
1934	442	287	64.9	218	49.3
1935	447	270	60.4	210	47.0
1936	452	338	74.8	193	42.7
1937	457	239	53.0	172	37.6
1938	464	247	53.2	177	38.1
1939	470	202	43.0	179	38.1
1940	473	231	48.8	181	38.3
1941	474	154	32.5	185	39.0
1942	477	113	23.7	175	36.7
1943	477	273	57.3	144	30.2
1944	401	219	45.4	134	27.9
1945	488	271	55.5	149	30.5
1946	493	343	69.6	163	33.1
1947	502	372	74.0	128	25.4
1948	515	325	63.1	157	30.5
1949	533	499	93.6	123	23.1
1950	558	586	104.8	129	23.1

DEATH CLASSIFICATIONS ACCORDING TO 6TH (1948) INTERNATIONAL LIST

1950	558	586	104.8	125	22.4
1951	580	467	80.4	76	13.1
1952	601	508	84.5	75	12.5
1953	621	378	60.6	43	6.9
1954	640	348	54.3	57	8.9
1955	659	413	62.7	31	4.7
1956	677	424	62.6	43	6.3
1957	692	332	47.9	36	5.2
1958	706	355	50.3	22	3.1
1959	726	320	44.1	24	3.3
1960	731	296	40.5	29	4.0
1961	737	209	28.4	18	2.4
1962	755	243	32.2	24	3.2
1963	773	216	27.9	13	1.7
1964	790	176	22.3	20	2.5
1965	806	153	19.0	12	1.5
1966	836	134	16.0	16	1.9
1967	877	137	15.6	9	1.0
1968	910	145	15.9	8	0.9
1969	947	133	14.0	8	0.8
1970	983	113	11.5	10	1.0
1971	1,029	113	11.0	17	1.6
1972	1,053	125	11.9	8	0.8
1973	1,068	110	10.3	11	1.0
1974	1,090	104	9.5	8	0.7
1975	1,127	102	9.1	10	0.9
1976	1,145	83	7.3	4	0.4
1977	1,183	112	9.5	7	0.6
1978	1,222	137	11.2	8	0.7
1979	1,232	128	10.4	8	0.6
1980	1,265	136	10.7	5	0.4

TABLE 4.

ANNUAL NOTIFICATIONS OF PULMONARY TUBERCULOSIS SHOWING STAGE OF DISEASE*

Year	PARENCHYMAL DISEASE						Pleural Effusion		Total
	Minimal		Moderately Advanced		Advanced				
1952	122	24.0%	275	54.1%	101	19.9%	10	2.0%	508
1953	122	25.9	210	55.5	65	17.2	5	1.4	378
1954	96	27.6	178	51.1	74	21.3	-	-	348
1955	111	26.9	225	54.5	64	15.5	13	3.1	413
1956	127	38.0	217	51.1	72	17.0	8	1.9	424
1957	102	30.7	163	49.1	61	18.4	6	1.8	332
1958	91	25.6	187	52.7	72	20.3	5	1.4	355
1959	103	32.2	151	47.2	55	17.2	11	3.4	320
1960	89	30.1	144	48.6	49	16.6	14	4.7	296
1961	90	43.1	73	34.9	34	16.3	12	5.7	209
1962	117	48.1	84	34.6	36	14.8	6	2.5	243
1963	99	45.8	89	41.2	26	12.0	2	1.0	216
1964	71	40.3	81	46.0	23	13.1	1	0.6	176
1965	75	49.0	60	39.2	17	11.1	1	0.7	153
1966	59	44.0	54	40.3	18	13.4	3	2.2	134
1967	56	40.9	59	43.1	20	14.6	2	1.4	137
1968	71	48.9	59	40.7	11	7.6	4	2.8	145
1969	57	42.9	62	46.6	13	9.8	1	0.7	133
1970	51	45.1	47	41.6	10	8.9	5	4.4	113
1971	42	37.2	52	46.0	17	15.0	2	1.8	113
1972	51	40.8	50	40.0	20	16.0	4	3.2	125
1973	45	40.9	46	41.8	14	12.7	5	4.6	110
1974	36	34.6	48	46.2	13	12.5	7	6.7	104
1975	43	42.2	43	42.2	15	14.7	1	0.9	102
1976	33	39.8	32	38.5	16	19.3	2	2.4	83
1977	47	42.0	54	48.2	9	8.0	2	1.8	112
1978	72	52.5	52	38.0	12	8.8	1	0.7	137
1979	57	44.5	51	39.8	18	14.1	2	1.6	128
1980	78	57.4	44	32.3	12	8.8	2	1.5	136

*Classified according to Diagnostic Standards N.T.A.

TABLE 5.
ANALYSIS OF REGISTER AS AT 31ST DECEMBER 1980

A. Pulmonary Tuberculosis
(excluding Pleural Effusions)

Activity	NUMBER ON REGISTER ACCORDING TO ORIGINAL EXTENT OF LESIONS			Total
	Minimal	Moderate	Advanced	
Active 	76	57	7	140
Inactive:				
0 - 1 years 	26	36	8	70
1 - 2 years 	54	37	9	100
2 - 3 years 	27	21	7	55
3 - 4 years 	29	23	8	60
4 - 5 years 	23	17	5	45
5 + years 	2	3	-	5
TOTAL	237	194	44	475

B. Pleural Effusion 8
C. Non-Pulmonary Tuberculosis 129

Total All Forms 612

TABLE 7.
SITE AND TYPE OF DISEASE (excludes transfers-in)

PULMONARY				EXTRAPULMONARY			
Diagnosis	No.	% of		Diagnosis	No.	% of	
		Pulmonary Cases	All Cases			Extra-Pulmonary Cases	All Cases
Primary				Genito-Urinary	7	22.6	4.2
Pleural Effusion	2	1.5	1.2	Lymph glands	16	51.6	9.7
Post-Primary				Bone & Joint	4	12.9	2.4
1. Minimal	76	56.7	46.1	Meninges	1	3.2	0.6
2. Mod. Adv.	44	32.8	26.7	Skin	2	6.5	1.2
3. Advanced	12	9.0	7.3	Ear	1	3.2	0.6
TOTAL	134	100.0	81.3	TOTAL	31	100.0	18.7

TABLE 8.

BACTERIOLOGICALLY PROVEN TUBERCULOSIS CASES NOTIFIED 1971 - 1980
EXCLUDES INTERSTATE TRANSFERS-IN AND DISEASE CAUSED BY ATYPICAL MYCOBACTERIA)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	TOTAL
PULMONARY											
Primary	1	1		1	2			1	1		6
Pleural Effusion		1	3	4	1	1		1			13
POST PRIMARY											
Min.	25	28	20	15	18	17	20	21	17	18	199
Mod.	31	36	30	34	30	19	25	29	30	22	286
Adv.	15	11	13	11	12	11	7	10	16	10	116
	72	77	66	65	63	48	52	62	65	50	620
EXTRA PULMONARY											
Genito-Urinary	5	7	10	13	10	7	6	2	6	5	71
Lymph Glands	1		2	1	3	2	2	3	1	1	16
Bone and Joint	3	1	3	2	3		2	3*	3	1	21
Meninges						2					2
Generalised								1			1
Abdominal									2		2
Chest Wall	1	1									2
Empyema	1			1	1						3
Mastoiditis				1							1
Ear								1	1	1	3
	11	9	15	18	17	11	10	10	13	8	122
TOTAL	83	86	81	83	80	59	62	72	78	58	742

*Includes 1 Sternal Cold Abscess.

TABLE 9.

REACTIVATIONS

Previous Treatment	Number of Reactivations									
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
(1) No chemotherapy	6	4	3	3	4	3	1	2	1	3
(2) Inadequate Chemotherapy										
Without Surgery	5	3	4	3	7	1	5	4		3
With Surgery				1	1			1	1	2
(3) Apparently Adequate Chemotherapy	1	1		1	1		2	3*	6	
TOTAL	12	8	7	8	13	4	8	10*	8	8

* Includes 1 with atypical tuberculosis due to M. Kansasi

TABLE 10.
REACTIVATION RATES

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
No. of reactivations	12	8	7	8	13	4	8	10	8	8
As % of total cases	8.4	5.2	4.8	5.7	9.4	3.7	5.2	6.1	4.5	4.8
Per 100,000 population	1.2	0.8	0.7	0.7	1.2	0.4	0.7	0.8	0.6	0.6

Country of Birth	Pop. at June 30 1976 Thousands (Census)	Incidence per Thousand Persons										Total Notific- ations 1971-80
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	
U.K. & Rep. of Ireland	90.8	0.31	0.23	0.21	0.29	0.12	0.13	0.26	0.19	0.06	0.13	153
Germany	3.7	0.69	0.56	0.56	-	0.28	-	0.56	-	0.27		10
Greece	2.4	-	1.11	0.74	0.74	-	-	0.74	-	0.42		10
Italy	16.1	0.44	0.41	0.29	0.41	0.12	-	0.35	0.12	0.12	0.18	41
Netherlands	5.8	0.17	0.16	-	0.16	0.16	-	0.16	-	0.17	0.17	7
Poland	2.5	0.36	1.07	0.36	-	0.36	-	-	0.40	-		7
Yugoslavia	6.0	0.43	0.16	0.16	1.29	0.81	-	0.32	0.33	0.83	0.33	28
Other European	8.0	-	0.05	0.93	0.23	0.23	0.12	0.23	0.75	0.25	0.25	26
Other Birthplaces	28.9	0.93	0.67	0.50	0.55	0.92	0.76	0.59	1.21	1.45	1.45	225
Total Non-Aust. born	164.1	0.38	0.48	0.31	0.37	0.29	0.20	0.33	0.38	0.36	0.38	507
Australian born	417.1	0.12	0.22	0.12	0.10	0.13	0.09	0.15	0.10	0.15	0.10	459

TABLE 12.

WESTERN AUSTRALIA: TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH 1971 - 1980: FEMALES

Country of Birth	Pop. at June 30 1976 Thousands (Census)	Incidence per Thousand Persons										Total Notific- ations 1971-80
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	
U.K. & Rep. of Ireland	85.8	0.20	0.16	0.09	0.12	0.12	0.17	0.07	0.06	0.08	0.07	83
Germany	3.7	0.33				0.86					0.27	5
Greece	2.1		0.43	0.87	0.43	0.87	0.43		0.48	0.48	0.95	11
Italy	13.2	0.41	0.15	0.15			0.07	0.07		0.08		12
Netherlands	4.9	0.22			0.20		0.20		0.20		0.20	5
Poland	1.9	1.00	0.50	1.00	0.50		0.50	1.00			0.53	10
Yugoslavia	4.4	0.34	0.51	0.51	0.26	0.51	0.51	0.51	0.45		0.68	17
Other European	6.4		0.68	0.34		0.71	0.34	0.34	0.31		0.16	14
Other Birthplaces	26.0	1.33	0.47	0.36	0.41	0.47	0.41	0.62	0.96	0.81	0.81	133
Total Non-Aust. born	148.4	0.37	0.21	0.18	0.16	0.20	0.22	0.18	0.24	0.20	0.24	290
Australian born	415.3	0.09	0.11	0.08	0.07	0.06	0.04	0.07	0.06	0.07	0.06	242

PATIENTS FROM WHOM MYCOBACTERIA WERE ISOLATED (FOR THE FIRST TIME) IN 1980 (OTHER THAN M. TB)

Type	Isolations not clinically significant	Atypical Tuberculosis			Total
		Pulm.	Non-Pulm.	Total	
M. Kansalii	4	2	1	3	7
M. Scrofulaceum	8				8
M. Gordonea	12	1		1	13
M. Flawescens	3				3
M. Avian		1		1	1
M. Intracellulare	82	9	6	15	97
M. Terrae	2				2
M. Fortuitum	3				3
Mixed	4	2		2	6
M. Chelonae					
M. Marinum	1				1
M. Triviale	1				1
M. Haemophilum			1	1	1
Total Patients	120	15	8	23	143

TABLE 14.

MYCOBACTERIAL DISEASE OF LYMPH NODES IN CHILDREN

Year	M. Scrofulaceum Identified	M. intra-cellulare Identified	M. TB (Human) Identified	Cultures Negative	Total Cases
1970	3	2	-	5	10
1971	-	3	-	3	6
1972	3	7	-	5	15
1973	6	8	-	1	15
1974	2	5	-	5	12
1975	-	5	-	3	8
1976	-	2	1	2	5
1977	1	6	-	9	16
1978	-	6	-	2	8
1979	6	9	-	15	30
1980	-	6	-	6	12
TOTAL NUMBER OF CHILDREN 1961 - 1980	30	92	2	102	226

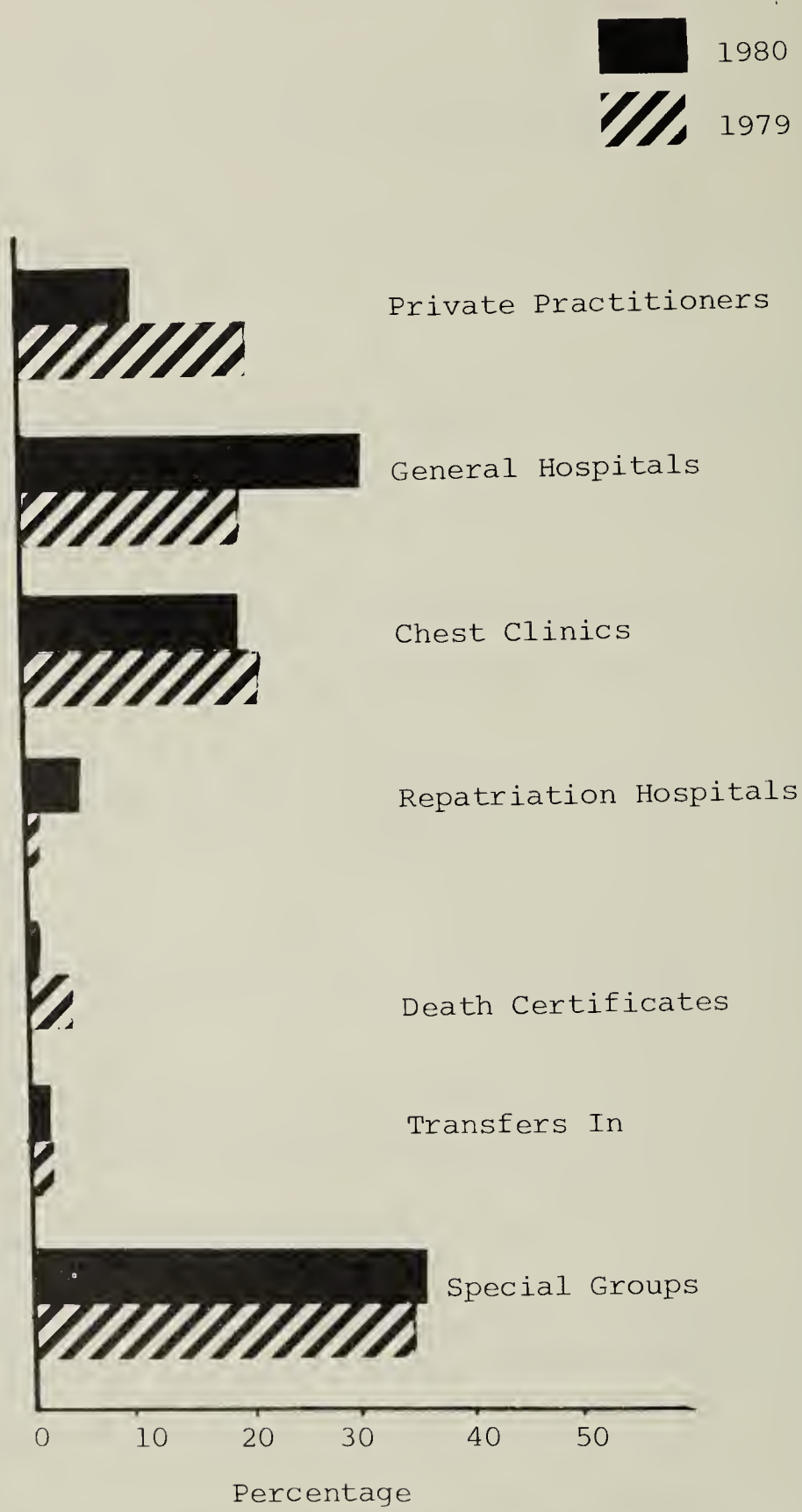
PATIENTS NOTIFIED WITH ATYPICAL TUBERCULOSIS
(INCLUDING REACTIVATIONS)

Year	M. Kansalii		M. Scrofulaceum				M. Intracellulare				Rapid Growers	
	Pulm	Other	Pulm	Lymph Nodes	Other	Total	Pulm	Lymph Nodes	Other	Total	Pulm	Lymph Nodes
1970	3	-	2	3	-	5	11	3	-	14	-	-
1971	-	-	1	-	-	1	5	3	-	8	-	-
1972	2	-	1	3	-	4	12	7	1	20	1	-
1973	-	1	-	6	-	6	8	8	-	16	-	1
1974	2	-	-	2	-	2	9	5	-	14	-	-
1975	2	-	-	1	-	1	8	6	1	15	-	-
1976	-	3	-	-	-	-	10	2	-	12	-	-
1977	2	-	1	2	-	3	17	6	2	25	1	-
1978	1	-	-	-	-	-	13	6	-	19	-	-
1979	-	1	-	6	-	6	10	9	-	19	-	-
1980	2	2	1	-	-	1	11	6	1	18	-	-
TOTAL 1955 - 80	20	7	32	32	1	65	233	97	5	336	3	1

Plus: Two patients with mixed pulmonary disease (1963 and 1970)

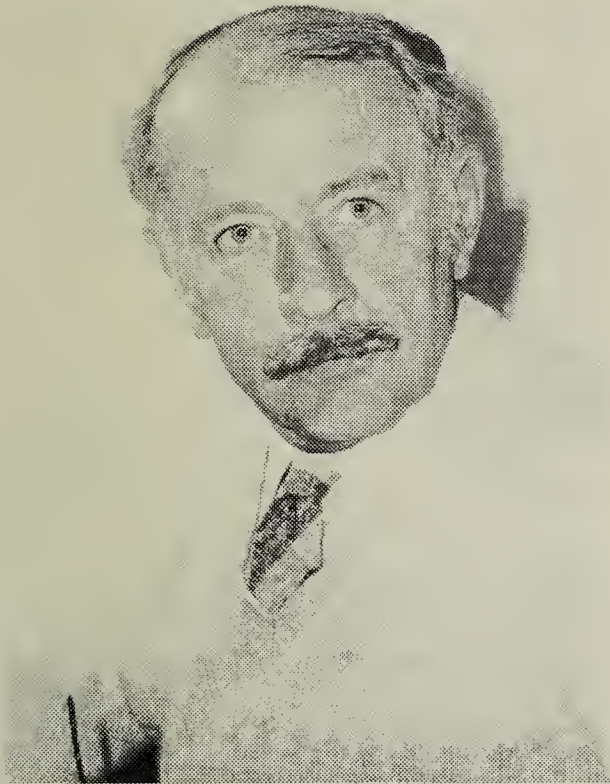
Two patients with mixed pulmonary disease and one haemophilum (1980)

DIAGRAM SHOWING THE SOURCE OF NOTIFICATION OF CASES OF PULMONARY TUBERCULOSIS AS A PERCENTAGE OF TOTAL NOTIFICATIONS.



Appendix IV

EPIDEMIOLOGY AND SPECIAL SERVICES BRANCH



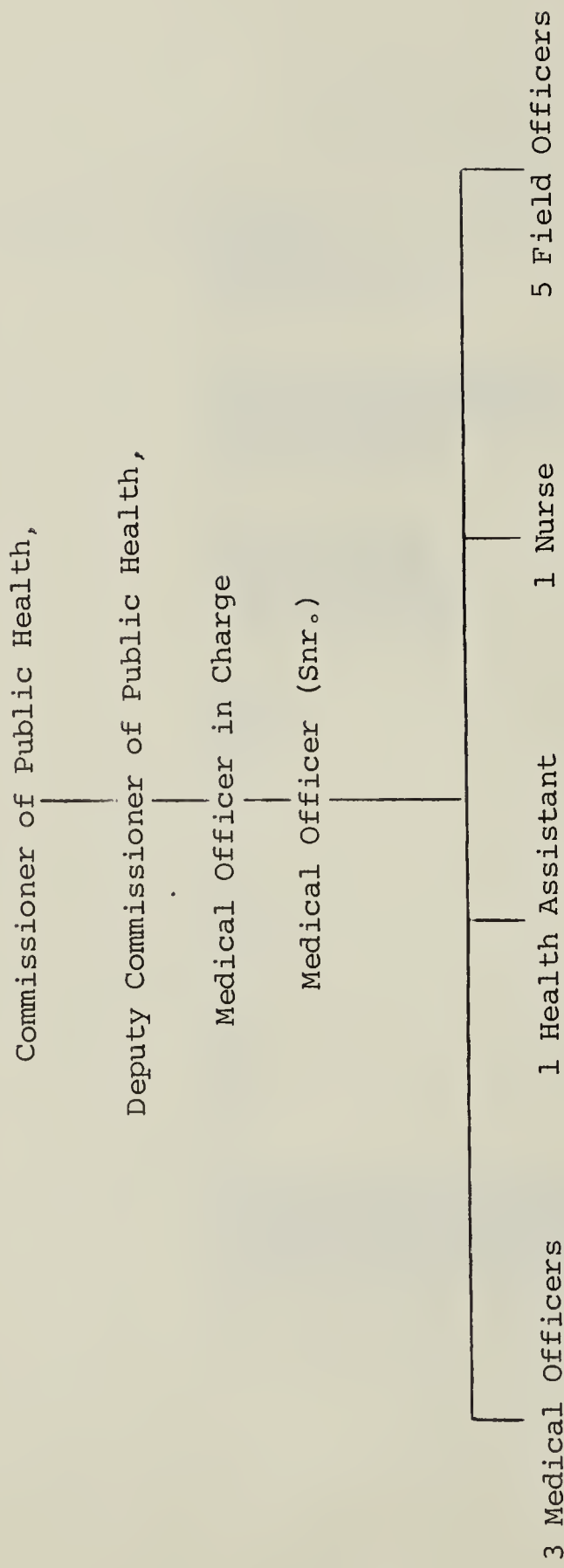
R. Allen,
M.B.B.S.
Medical Officer in Charge

SENIOR STAFF

Medical Officer in Charge: Dr. R.
Allen

Medical Officer: Dr. W.R. Walker

EPIDEMIOLOGY AND SPECIAL SERVICES BRANCH - ORGANIZATION CHART



EPIDEMIOLOGY AND SPECIAL SERVICES

IMMUNISATION

Injections carried out during 1980 totalled 45,879 - a decrease of 8.7% when compared to the record total in 1979. This decrease is considered to be due to:-

1. Increasing public apathy, especially in the metropolitan area. This is supported by reports of parallel falling attendances at Local Health Authority Clinics.
2. The introduction of the new immunisation schedule in 1979. This schedule recommends that first booster doses be given at the age of eighteen months instead of twelve months as previously. Hence during the first half of 1980, relatively few infants were required to attend for this immunisation.

Early in 1981 a publicity campaign is proposed, aimed at increasing general levels of immunisation. This campaign will coincide with the commencement of the designated International Year of the Disabled Person.

The acceptance rate of Rubella vaccine among Year 8 girls showed a further increase to 82.8%, and a total of 80,112 girls have now been vaccinated since the commencement of the campaign in 1971.

The following immunisations were carried out during 1980:-

Sabin Vaccine		54,051
Triple Antigen	15,050	
C.D.T.	10,860	
Tetanus Toxoid	4,256	
Measles	6,891	
Rubella	8,798	
Miscellaneous	24	
	<hr/>	
Total Injections	45,879	45,879
		<hr/>
Total Treatments		99,930

MALARIA

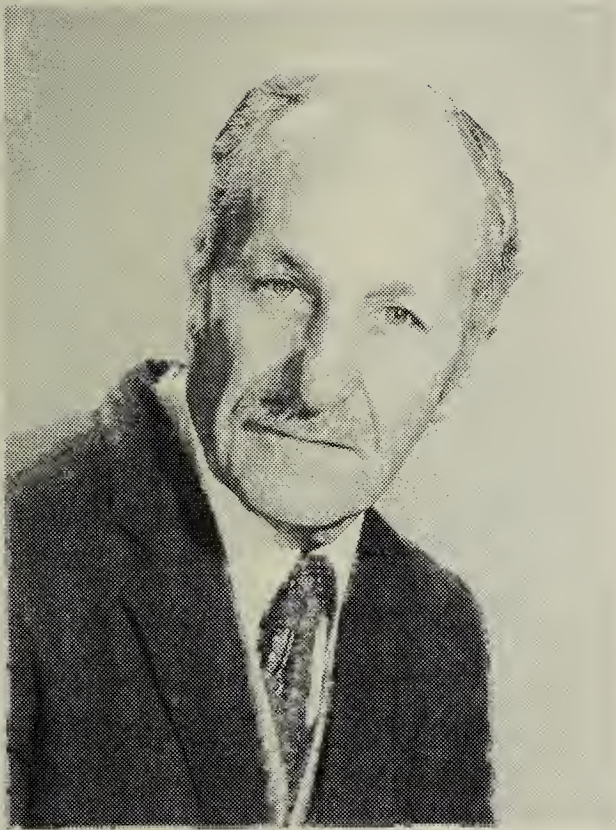
Notifications of malaria showed the predicted increase during 1980, and a total of 50 cases were followed up. However 34 of this number were Vietnamese immigrants who had spent time in staging camps in islands off the Indonesian coast. During the latter part of the year, arrangements were made to administer anti malarial treatment to all immigrants from these camps upon arrival in Western Australia.

Details of cases, including country of origin, are as follows:-

		<u>TOTAL</u>
Vietnam via Indonesia	- Pl. vivax 33 Pl. falciparum 1	34
Indonesia	- Pl. vivax 6 Pl. falciparum 2	8
Papua New Guinea	- Pl. vivax 5 Pl. falciparum 1	6
Persian Gulf	- Pl. vivax 1	1
Unknown (merchant seaman)	- Pl. vivax 1	1
		<u>50</u>

Pl. vivax	46
Pl. falciparum	4
	<u>50</u>

VENEREAL DISEASE CONTROL BRANCH

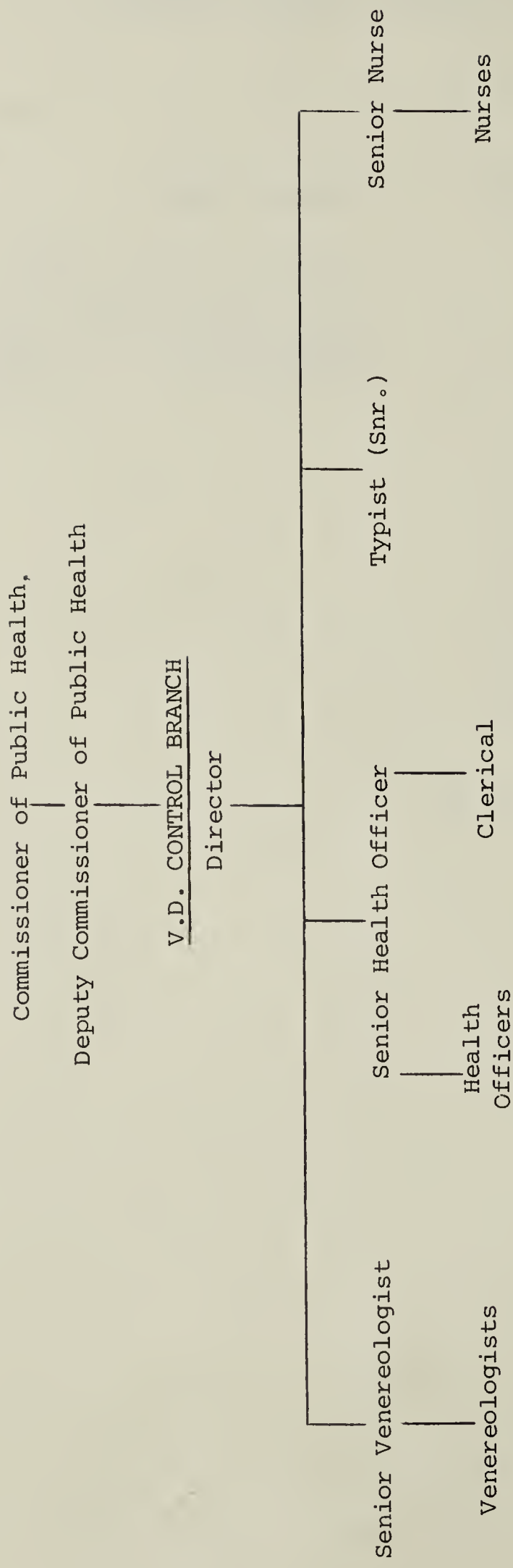


SENIOR STAFF

Director: Dr. M.M. Gollow
Senior Venereologist: Dr. D.J. Kenner
Senior Health Officer: Mr. G.C. Ross
Senior Nurse: Mr. A. Tyler
Secretary: Mrs. J. Van Bavel

M.M. Gollow,
M.R.C.S. L.R.C.P. Dip. Ven. (Lond.)
Director

V.D. CONTROL BRANCH - ORGANIZATION CHART



VENEREAL DISEASE CONTROL BRANCH

The activities of the Venereal Diseases Control Branch of the Department of Health and Medical Services of Western Australia, have been extended in depth to large areas of the State.

Total notifications for 1980 were one thousand three hundred and ninety nine, a decrease of 2.71% on the notifications for 1979, and a decrease of 47.16% since 1975.

TABLE 1
VENEREAL DISEASE - WESTERN AUSTRALIA

YEAR	GONORRHOEA	SYPHILIS	GRANULOMA	CHANCROID	TOTAL VENEREAL DISEASE
1980	1,215	179	4	1	1,399

SEE GRAPH 1

The incidence of gonorrhoea was 96.04 per 100,000 population, which is 0.82 lower than in 1979, and the incidence of syphilis was 14.14 per 100,000 population which is 4.48 lower than in 1979. This latter figure is very gratifying, as it is indicative of very adequate contact tracing by the Venereal Diseases Control Branch. This is similarly reflected in the ratio of male to female patients attending the three clinics, which is now reduced to 1.85:1.

WESTERN AUSTRALIA - 1980

INCIDENCE OF GONORRHOEA AND SYPHILIS PER 100,000 POPULATION

Gonorrhoea	-	96.04 per 100,000
Syphilis	-	14.14 per 100,000

(Population of W.A. - 1,265,100* - 30 June, 1980)

Age and sex distribution of males and females in 1980 still shows that the maximum incidence of Venereal Disease is in the 20-24 age group. Percentage age distribution demonstrates that 70% of infections occur in the 15-19 age group.

*Australian Bureau of Statistics estimate of population 30th June, 1980.

TABLE 2

VENEREAL DISEASE - WESTERN AUSTRALIA
TOTAL VENEREAL DISEASE AGE DISTRIBUTION - 1980

0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED
34	285	434	259	165	216	6

VENEREAL DISEASE - WESTERN AUSTRALIA
AGE DISTRIBUTION - 1980

0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED
2.43%	20.37%	31.02%	18.51%	11.79%	15.44%	0.43%

Total Consultations at each of the three clinics were 44,080 -

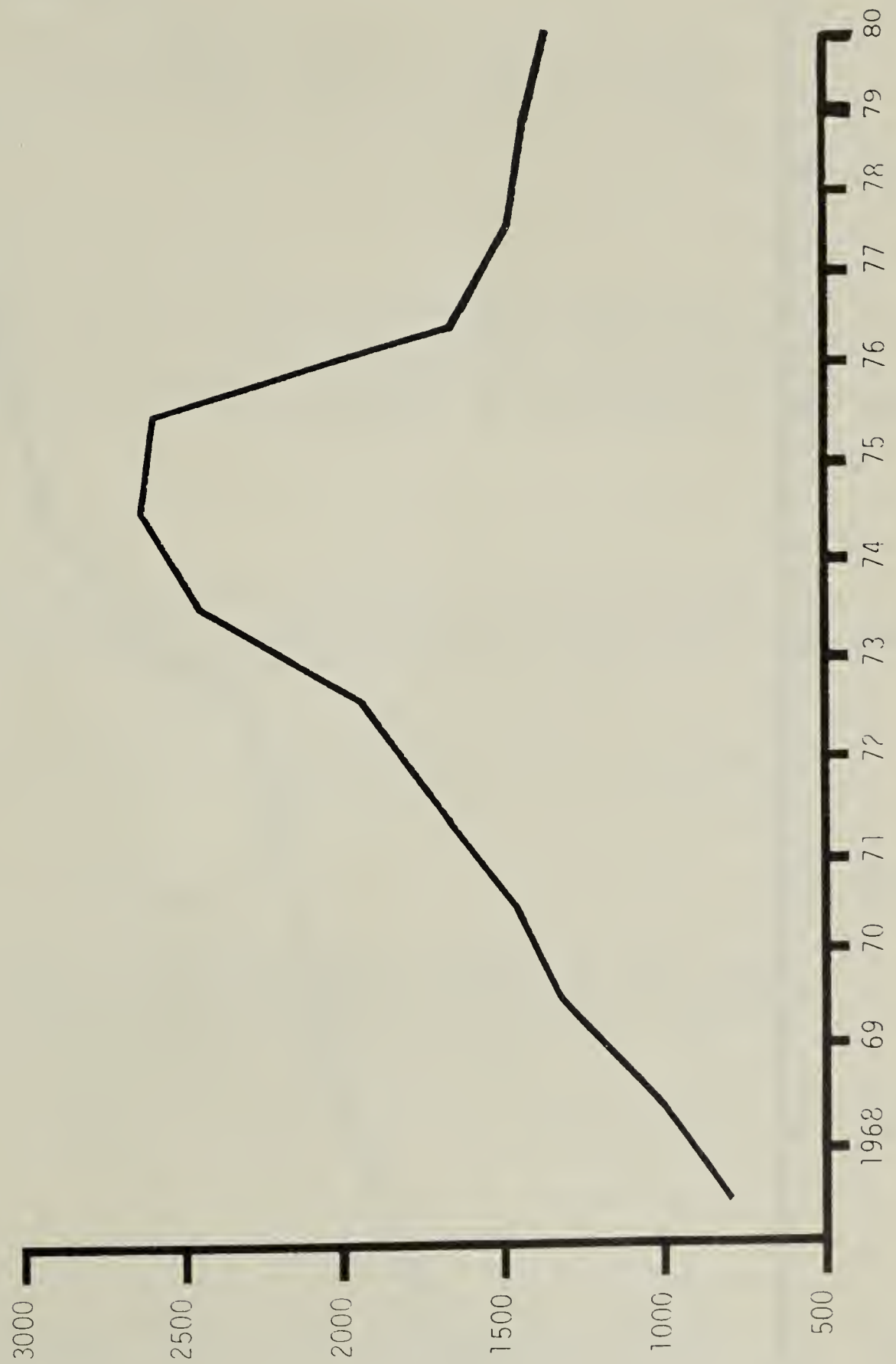
69 Moore Street Clinic	-	38,591 consultations
Queen Elizabeth II Medical Centre Clinic	-	3,546 consultations
Fremantle Hospital Clinic	-	1,943 consultations

The co-operation of the Medical Superintendents and the staff of Royal Perth Hospital, Queen Elizabeth II Medical Centre and Fremantle Hospital, is gratefully acknowledged.

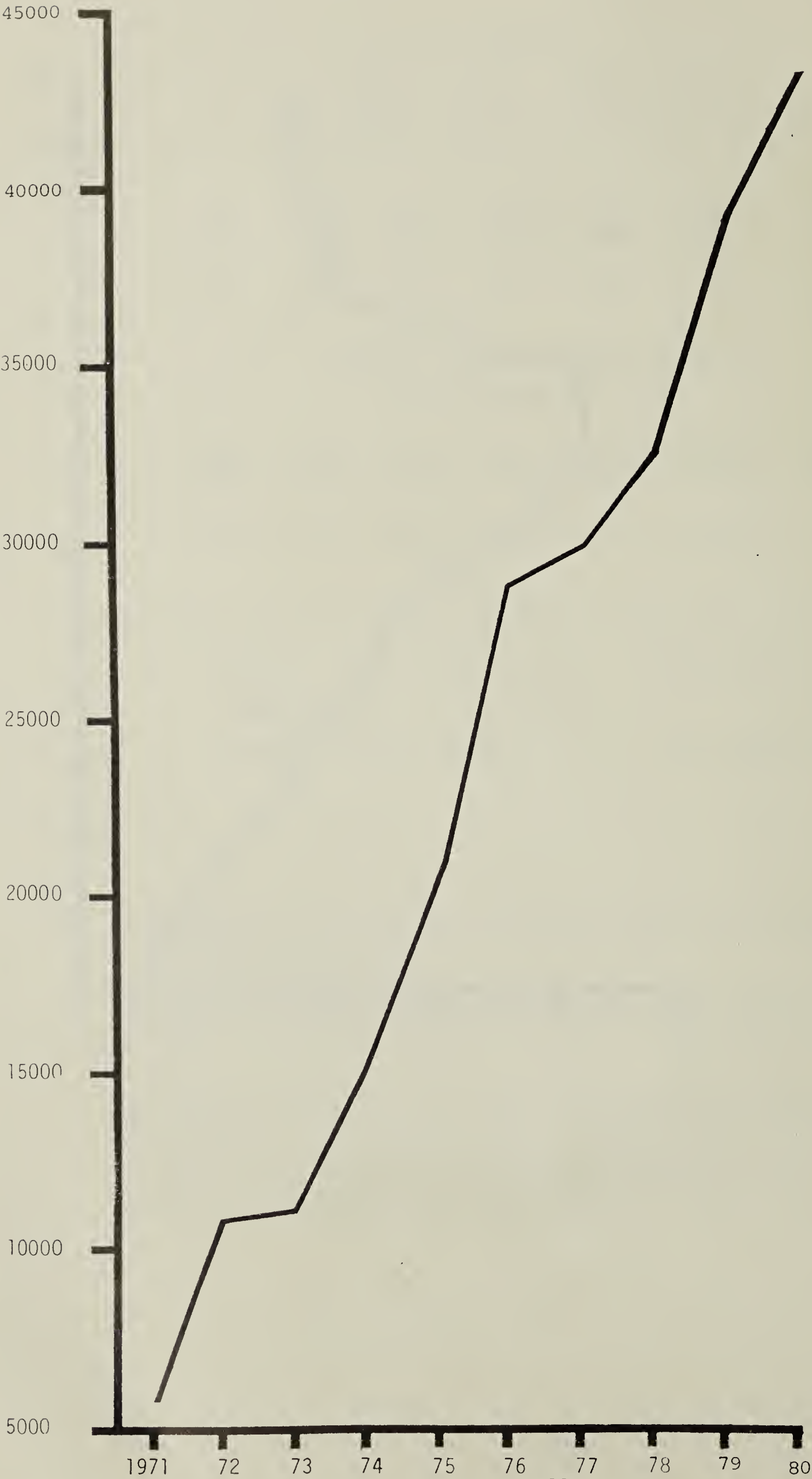
Tutorials in the Emergency Departments of all three Hospitals is now a continuous ongoing programme, and has shown demonstrable benefits in the past year.

The retirement of Mr. N.C. Rees F.R.C.S., the Medical Superintendent, Royal Perth Hospital occurred during 1980. He has been actively associated with the formation of the Venereal Diseases clinic in Moore Street, and over the years his co-operation, assistance and advice have been always available. We gratefully acknowledge our debt to him, and hope that he will enjoy his sojourn in the Middle East.

V.D. NOTIFICATIONS (W.A.) 1968-1980



CONSULTATIONS V.D. CONTROL CLINICS 1971-1980



KING EDWARD MEMORIAL HOSPITAL

An increase in the number of consultations was again noted. The close co-operation of the staff of this hospital, under the active leadership of the Medical Superintendent, Dr. S. Reid and his Deputy, Dr. G. Bird, is gratefully acknowledged.

COMMUNITY AND CHILD HEALTH SERVICES

The Venereal Diseases Control Branch has again been actively associated with the Community and Child Health Services at all levels. They act on our behalf outside the metropolitan area, and we have been actively involved in their training. My appreciation for the co-operation of this Branch is gratefully acknowledged.

LABORATORY SERVICES

The microbiological assistance afforded to the Venereal Diseases Control Branch is of the highest standard to be obtained anywhere in the world. Without this service our level of expertise would be considerably diminished.

The gratitude of this Branch to Dr. V. Blackman and his staff is sincerely acknowledged.

BETA LACTAMASE PRODUCING GONOCOCCI

A small increase in the numbers detected was noted, several of which were of local origin. The facilities for detecting this variety of microorganism is now available at every Public Health Laboratory in the State. Rapid contact tracing has effectively traced the known sufferers.

It is only with continual vigilance that control in this area will be maintained.

EDUCATION

One hundred and fifty formal lectures and three hundred tutorials were given by venereologists and staff. Five in depth postgraduate lectures on Trepanematoses were given at each of the major teaching hospitals. This branch now acts as tutor in the sexually transmissible diseases to the specialist physician training programme, and is participating in the training of specialists in other disciplines.

Undergraduate and postgraduate training of nurses continues with the assistance of all members of the staff of the Venereal Diseases Control Branch. An inservice training programme has been instituted within the clinic itself, and for the first time in 1980 a full-time resident was appointed from Royal Perth Hospital.

All these educational services are of the utmost importance, as it is only by this method that we can elevate levels of professional expertise, and provide Western Australia with the in depth expertise to obtain adequate

venereal disease control.

EDUCATIONAL SERVICES BRANCH

The active co-operation of this branch at all levels with the Venereal Diseases Control Branch has been established. Several joint projects have been undertaken and further benefits of this will be manifest in the future. My gratitude to the Director and all his staff is acknowledged.

METROPOLITAN AREA

Active involvement with private practitioners has been continued, and this year a policy of personal visits to doctors in the metropolitan area at their request, by a venereologist, was vigorously pursued. Eighty four practitioners were visited, to provide information and educational services, and to invite them to make fuller use of the facilities of the Venereal Diseases Control Branch.

RURAL AREAS

The following towns were visited, and medical practitioners and nurses in these areas interviewed and provided with consultation and education -

Derby, Broome, Kununurra, Wyndham, Halls Creek, Balgo, Bililuna, Fitzroy, Northam, Wyalkatchem, Kununoppin, Kalgoorlie, Boulder, Southern Cross, Merredin, Wagin, Katanning, Lake Grace, Lake King, Ravensthorpe, Esperance.

VENEREAL DISEASE CO-ORDINATING COMMITTEE OF WESTERN AUSTRALIA

This multi disciplinary body of both Medical and Non-Medical persons, continued its activity in 1980, under the skilled Chairmanship of Professor J.D. Martin. The advice and assistance of this Committee in venereal disease control is gratefully acknowledged.

Professor J.D. Martin undertook an evaluation visit to the Kimberley Region with the Director of the Venereal Diseases Control Branch, and his expert advice was of enormous assistance in discussing the problems encountered. The relationship between the venereal diseases and obstetrics and gynaecology is well known, and integration and pooling of ideas from a combined evaluation tour is a further example of the co-operation that exists between the two departments, and the benefits accruing therefrom.

KIMBERLEY REGION

In 1980, with the introduction of regionalization, this branch was able to involve itself actively in the control of sexually transmissible diseases in this region.

After an information seeking tour and its evaluation by the Director of the Venereal Diseases Control Branch, a programme was evolved in association with the Director of the Kimberley Health Region, Dr. R. Spargo, and

the Senior Medical Officers of the Kimberley Hospitals, in particular Dr. W. Beresford, Senior Medical Officer, Derby Hospital. This has resulted in the introduction of standard policies for the diagnosis, treatment and control of venereal diseases, with areas of responsibility clearly laid out.

A Venereal Disease Co-ordinating Committee for the Kimberley was formed under the Chairmanship of the Kimberley Regional Administrator, and this Committee met twice in 1980. The Director of the Venereal Diseases Control Branch is a member of this Committee and attends each of its three monthly meetings, at the same time providing a consultation service to all professionals in the region and an educational service at all levels. The Venereal Diseases control programme whose success relies on close co-operation between Hospital based and Community based doctors, is evaluated at each visit.

Venereal Disease Co-ordinating Committees in each of the four shires of the Kimberley have been formed, and those of the West and East Kimberley have now met on several occasions.

The rationale of these Committees is active involvement of total population in recognition of the social origins of these diseases, and the necessity for all levels of the Community to be involved in Venereal Disease Control.

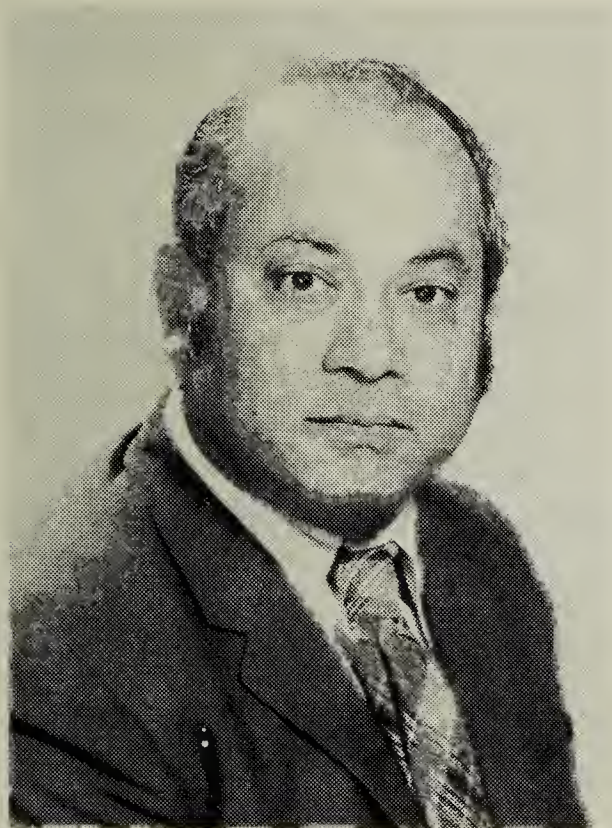
I gratefully acknowledge the assistance of Dr. W. Roberts, Director of Hospitals and Allied Services, Department of Health and Medical Services, and his staff, for their assistance with the introduction of this programme, and Dr. R. Spargo for its day to day supervision.

CONCLUSION

The doctors, nurses and clerical staff of the Venereal Diseases Control Branch have advanced their expertise in this past year, all being involved actively in every aspect of venereal disease control, and to them I offer my particular thanks.

My gratitude is expressed to the Commissioner of Public Health, Dr. J.C. McNulty, the Deputy Commissioner of Public Health, Dr. L.J. Holman, the Assistant Commissioner of Public Health, Dr. K. Carruthers, and the Acting Assistant Commissioner of Public Health, Dr. F. Quadros, whose advice, assistance and co-operation have been invaluable in 1980.

COMMUNITY AND CHILD HEALTH SERVICES



C.F. Quadros,
M.B., B.Ch., B.A.O., D.P.H.
Director

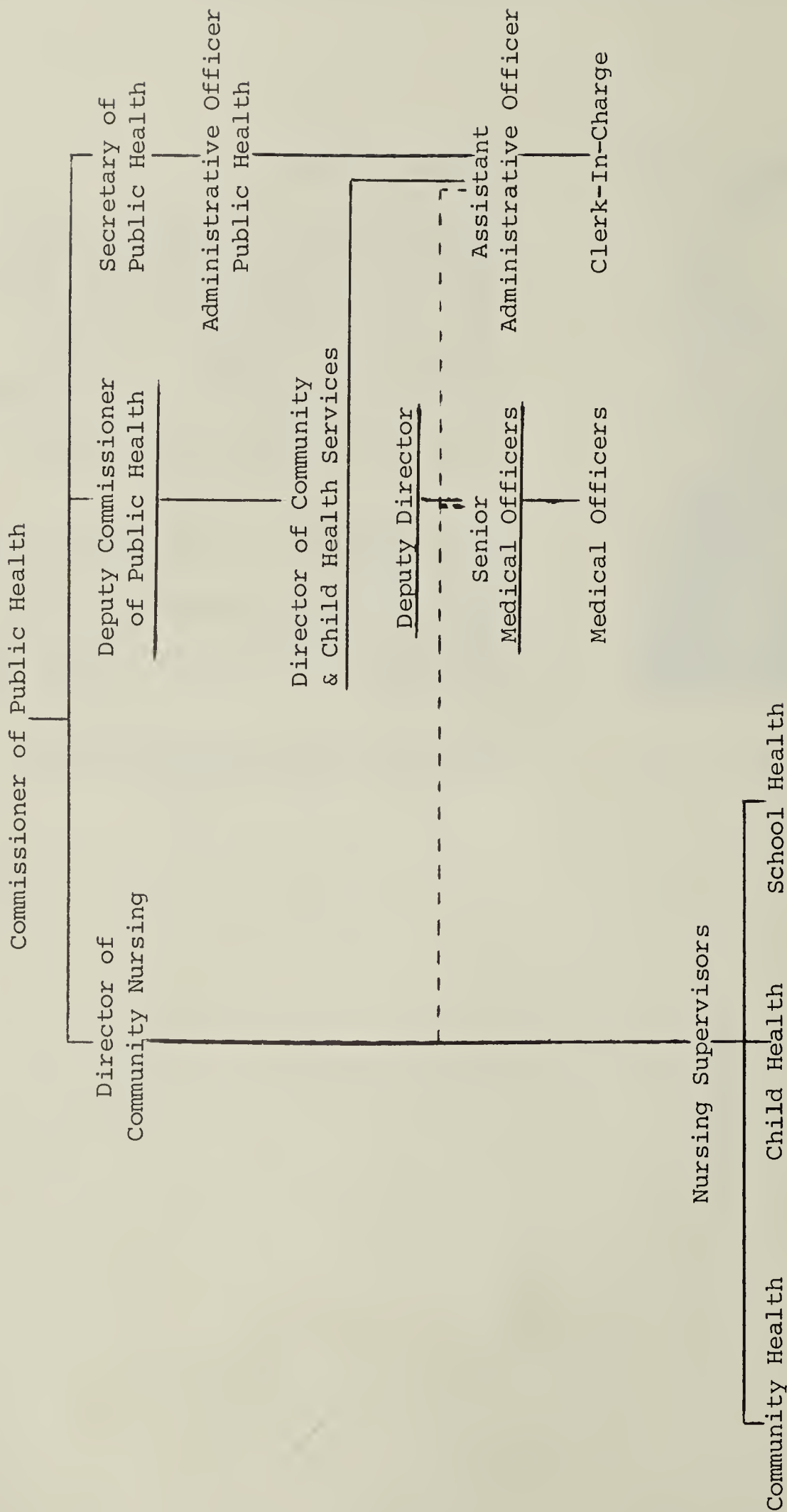
SENIOR STAFF

Director: Dr. C.F. Quadros
Deputy Director: Dr. J.M. Henzell
Senior Medical Officer, Child Health:
Dr. T.R. Henderson
Senior Medical Officer, Community
Health: Dr. G. Hart
Senior Medical Officer, School Health:
Dr. M.J. Gibson
Paediatrician, Child Development
Centre: Dr. T.S. Parry

Nurse Supervisor, Child Health: Miss
N. Chidlow
Nurse Supervisor, Community Health:
Mrs. E.D. Panter
Nurse Supervisor, School Health: Miss
L. Keddie

Assistant Administrative Officer:
Mr. F.G. Skeels (Acting)

COMMUNITY AND CHILD HEALTH SERVICES - ORGANIZATION CHART



COMMUNITY AND CHILD HEALTH SERVICES

INTRODUCTION

Increasing public interest in health promotion and prevention of handicap and disability is resulting in an increased work load particularly in Child Health Centres and speech therapy services. Sharp divisions of opinion on the effectiveness of different methods of delivery of aboriginal health programmes have had considerable publicity and the Branch is continuing to evaluate the effectiveness of its services. Encouraging trends in aboriginal health are continuing.

From April to November 1980 the Director acted in the position of Assistant Commissioner of Public Health. During that time Dr. J. Henzell acted as Director of Community and Child Health Services. Dr. R. Henderson was appointed Senior Medical Officer (Child Health) to replace Dr. Stanley who resigned to take up the position of Deputy Director of the National Health and Medical Research Council Research Unit. Dr. Stanley continued to be available as consultant to the Branch particularly with respect to infant and perinatal mortality and morbidity.

All sections of the Branch maintained their programmes despite financial constraints. The Under Fives Programme for Aboriginal children was implemented during 1980 and is now being carried out by Aboriginal Health Workers and health teams throughout the State. In conjunction with this programme the Ear Health Programme has been implemented and consultations took place with the W.A. Branch of the Royal College of Ophthalmologists concerning the continued surveillance of trachoma. Attendances at Child Health Centres continued to rise in all age groups despite a stationary birth rate.

Trends in infant mortality in Western Australia are shown in Table 1A. There has been a slight increase in infant mortality in 1979 as compared with 1978 in the Perth Statistical Division. The rate fell in the other statistical divisions in the State. The Aboriginal infant mortality for 1979 (preliminary data) showed a continuation of the satisfactory trend shown in 1978. The stillbirth rate for Aboriginal mothers however, increased to 17.3 per thousand total births. This shows the need for further development of maternal health and antenatal care programmes amongst Aboriginal mothers. Table 2A shows infant mortality, neonatal deaths and stillbirths in Western Australia while Table 3A shows infant mortality in Western Australia (Aboriginal). Table 4A shows a comparison between Aboriginal and Non-Aboriginal rates during 1979. While in fact the infant mortality rate for Aboriginal children continues to be considerably lower than some years ago it still compares adversely with the Non-Aboriginal rate.

TABLE 1A
 INFANT MORTALITY, NEONATAL DEATHS AND STILLBIRTHS

	<u>PERTH STATISTICAL DIVISION</u>	<u>REST OF STATE</u>	<u>WHOLE STATE</u>
INFANT DEATHS			
Number	145	102	247
Rate	10.6	15.0	12.1
NEONATAL DEATHS (aged under 28 days)			
Number	99	70	169
Rate	7.2	10.3	8.3
STILLBIRTHS (>20 weeks gestation)			
Number	117	67	184
Rate per 1000 total births	8.5	9.8	8.9
PERINATAL DEATHS (Stillbirths plus neonatal deaths)			
Number	216	137	353
Rate	15.7	20.1	17.2
POSTNEONATAL DEATHS			
Number	46	32	78
Rate/1000 live births	3.4	4.7	3.8

TABLE 2A
 PERINATAL AND INFANT STATISTICS (ABORIGINAL AND CAUCASIAN)
 1979

	ABORIGINAL*		CAUCASIAN	
	No.	Rate	No.	Rate
Livebirths	851	-	19,588	-
Stillbirths	15	17.3	158	8.0
Neonatal deaths	11	12.9	134	6.8
Postneonatal deaths	14	16.5	59	3.0
Infant deaths	25	29.4	193	9.9

*Preliminary data: figures also variable because of small numbers
 Figures from Joan Bedford/F. Stanley.

TABLE 3A
ABORIGINAL INFANT MORTALITY STATISTICS

	1971	1976	1977	1978	1979 Prelim- inary figures
Live Births		1009	1014	1054	851
Infant Deaths		46	30	29	25
Infant Mortality Rate (per 1,000 live births)	76	45.6	29.6	27.5	29.4
Neonatal Deaths		20	19	13	11
Neonatal Mortality Rate (per 1,000 live births)		19.8	18.7	12.3	12.9
Stillbirth Rate (per 1,000 total births)		18.5	17.4	8.9	17.3

TABLE 4A
INFANT MORTALITY IN WESTERN AUSTRALIA 1972-79

YEAR	PERTH			REST OF STATE			WHOLE STATE		
	Live Births	Infant Deaths	I.M. Rate	Live Births	Infant Deaths	I.M. Rate	Live Births	Infant Deaths	I.M. Rate
1972	14,400	188	13.1	7,777	160	20.6	22,177	348	15.7
1973	13,307	213	16.01	7,203	181	25.13	20,510	394	19.21
1974	13,313	174	13.07	6,894	153	22.19	20,207	327	16.18
1975	13,406	150	11.19	6,932	121	17.46	20,338	271	13.32
1976	13,448	147	10.93	7,222	126	17.45	20,670	273	13.21
1977	13,571	154	11.35	7,080	97	13.70	20,651	251	12.15
1978	13,719	119	8.7	6,892	111	16.1	20,611	230	11.2
1979	13,685	145	10.6	6,789	102	15.0	20,469	247	12.1

CHILD HEALTH SECTION

1. STAFF

- 1.1 Highest number of staff 148 and lowest 138 with a higher staff turnover in the metropolitan area.
- 1.2 Staff supervisory visits were undertaken extensively throughout the State with emphasis this year to centres throughout the southwest land division. It was particularly pleasing to note the high degree with which country staff were involved in their respective communities outside normal working hours. This factor doubtless contributes to more consistent placements of individual country staff members.
- 1.3 The one member of staff on study leave successfully completed a Bachelor of Applied Science (Nsg) and returned to the section in December 1980 to commence administrative duties. The one applicant for study leave in 1981 was successful and will commence full time studies in February 1981 at W.A.I.T.

2. STATISTICS

2.1 Child Health Centres

- 2.1.1 New Centres. A total of eight (8) child health centres were completed and opened for use in 1980. These new centres have provided first class facilities for those in attendance and the larger floor plan enables hearing and vision screening to be coped with adequately. The new centres comprising.

Metropolitan 5

High Wycombe) replacing mobile units and attached to
Huntingdale) community civic centres.
Karawara, incorporated in a new Lady Gowrie Centre.
Beckenham, attached to existing pre-school centre.
Hillman, attached to a community centre.

Country 3

Sandridge Park, incorporated in new Bunbury Forum Shopping
Centre.

Kulin)
Dalwallinu) included within community civic centres.

The number of child health clinic facilities currently available are shown in Table 1.

TABLE 1

CHILD HEALTH CLINIC FACILITIES

	METROPOLITAN	COUNTRY	TOTAL
Child Health Centres	131	102	233
Halls	0	80	80
Mobile Vans	6	1	7
TOTAL	137	183	320

2.1.2 Attendances of children both individual and gross continue to rise and a considerable increase in Stycar screening is noteworthy. Telephone consultations of parents ringing centres also shows an increase and on individual reports this tendency is greatest at the centres which have the highest attendances.

TABLE 2

CHILD HEALTH CENTRE ATTENDANCES 1978 - 1980

	1978	1979	1980
Birth Notifications received at Child Health Centres	20,055	20,046	20,044
Births Registered	20,611	20,469	20,682 (a)
Gross Attendances	287,742	289,180	296,884
Individual Attendances:			
Under 1 year	23,926	23,903	23,946
1-2 years	12,997	13,812	14,403
Over 2 years	12,621	13,457	15,946
TOTAL	49,544	51,172	54,295
Home Visits	40,310	36,862 (b)	36,243
Telephone Consultations	60,657	62,703	79,250
Hospital Visits	N/A	21,327	21,188
Stycar Screenings	N/A	99,090	107,085
Expectant Parent Classes)	1,200	1,113	1,307
)			
Gross Attendance	18,734	19,808	22,036

(a) Preliminary A.B.S. figure

(b) Lower figure due to exclusion of "Ineffective visits"

TABLE 3

STYCAR SCREENING IN CHILD HEALTH CENTRES

	1978	1979	1980
0 - 2 Years	72,047	70,140	75,954
1 - 2 Years	16,002	15,081	15,589
2 - 5 Years	12,294	13,869	15,542
	100,343	99,090	107,085

TABLE 4

REFERRALS RESULTING FROM STYCAR SCREENING

	1978	1979	1980
Hearing	290	215	322
Speech	138	189	202
Vision	505	615	835
	933	1,019	1,359

3. PARENTHOOD SECTION

- 3.1 This unit has presented programmes for expectant parents, parents and mothers in the early post-natal period. This has been done by providing the following facilities.

Information centre
 Expectant parent classes
 Sewing groups
 Talks for parents

and in association with a physiotherapist

Father coached preparation birth classes
 Post-natal (keep fit) classes

- 3.2 Visitors to the Information Centre during the year included -

Expectant parents - 292
 Parents - 391
 Students - 222
 Others - 144

Others include - physiotherapist, midwives, post-graduate students, medical representatives, doctors from Community Health, members of staff, dentists (Perth Dental Hospital), C.P.E.A. representatives, teachers, librarians, social workers, Burmese paediatricians.

3.3 Introductory Night Health Monthly

This is an opportunity to interest and motivate expectant parents. It makes them aware of aspects of pregnancy, the need for good obstetric care and the need to prepare for both labour and for parenthood.

Two films are shown:

- (a) "Pre-Natal Care" purchased during the year and covering aspects of physical care and nutrition.
- (b) "Amazing Newborn"

A new film "Emotional Aspects of Pregnancy" has just recently been purchased and this seems an appropriate time to use it.

A Child Health Nurse and physiotherapist speak about preparation classes for birth and parenthood.

The medical officers of the service make a valuable contribution to this evening, being available to answer any questions.

3.4 Father Coached Preparation for Birth Classes

A course consists of 7 sessions at weekly intervals. Four sessions of nine couples are held weekly finishing 2-3 weeks before the expected date of delivery. These classes have proved most successful and enthusiastically received by those in attendance.

4. SCHOOLS RESOURCES SECTION See Table 5

- 4.1 During 1980 the number of students introduced to the parenthood course in State and independent high schools has remained constant. However, records show that more teachers have increased their student's participation in related activities and have demonstrated a growing commitment to the parenthood course.

Two highlights during the year were the programmes in country centres and surrounds of Geraldton and Kalgoorlie.

4.1.1 Early Childhood Studies Course

In 1980 31 schools offered this course to their students in years 11 and 12 and school resources nurses gave support and assistance to both teachers and students which has involved classroom lessons and demonstrations.

4.1.2 Trainee Teachers

It is planned in 1981 to introduce trainee teachers to the parenthood course.

4.1.3 Community Youth Support Scheme Centres

The following centres were given assistance in their Child Care Courses; Armadale, Bayswater, Belmont, Gosnells, Hilton, Kalamunda, Midland and Wanneroo.

TABLE 5

ATTENDANCES	1st Term	2nd Term	3rd Term	Sub Total	Total
PARENTHOOD COURSE - YEAR 9 STUDENTS					
CITY					
Boys	524	2,011	681	3,216	
Girls	576	1,421	729	2,726	
City Total	1,100	3,432	1,410	5,942	5,942
COUNTRY					
Boys	302	59	248	609	
Girls	271	50	245	566	
Country Total	573	109	493	1,175	1,175
PARENTHOOD COURSE TOTAL					7,117
SUPPLEMENTARY ATTENDANCES OF					
Primary school students					
Senior high school students (Year 10-12)					
Parent Groups					
Commonwealth Youth Support Scheme groups					
Student and post graduate nurses					
TO:					
TALKS					
City	537	254	392	1,183	
Country	62	-	6	68	
	599	254	398	1,251	
FILM SHOWINGS					
City	362	241	434	1,037	
Country	54	-	-	54	
	416	241	434	1,091	
MATERIAL DISTRIBUTION					
City	-	-	-	-	
Country	135	139	90	364	
	135	139	90	364	
Supplementary Total	1,150 +	634 +	922 =	2,706	2,706
TOTAL NUMBER OF STUDENTS FOR 1980					9,823

5. EDUCATION SECTION

- 5.1 In Service Lectures were arranged and prepared to include 10 metropolitan and 10 country regional meetings.
- 5.2 Annual Conference was successfully held in August for which a wide variety of subjects were chosen to complement the International Year of the Child.
- 5.3 Orientation programmes were prepared for 12 new members of staff.
- 5.4 Stycar retraining programmes were undertaken by all (148) Child Health Nurses in groups of six (plus mothers and children).
- 5.5 Basis students (272) were offered introduction and observations on a two day basis. Post basic (23) nurses undertaking the Child Health Course were given weekly x 40 tutorials and 3 practical clinical assessments. (69)
- 5.6 Post graduate (4) nurses undertaking a Child Health elective received a total of 200 hours tutorial and supervised practise.
- 5.7 Child Health leaflets distributed to parents were extensively reviewed with particular attention to the re-arrangement in presentation of leaflets pertaining to pre-schoolers.

6. CORRESPONDENCE RESOURCES SECTION

- 6.1 A wide range of resources was met by Child Health Nurses staffing this unit including
 - 6.1.1 Telephone Advisory Service given mostly to parents ringing the central office. Total 6,076
 - 6.1.2 Tea and Sugar Train x 10 monthly excursions

TABLE 6

COMMUNITY SERVICE CAR - ANNUAL STATISTICS

Total attendances 0-5 years	186
Total Stycar screenings	53
School children health appraisals	104

It is noteworthy that with different methods of maintenance now required along the Trans Railway line the number of workers have been reduced and consequently many families have withdrawn from previous settlements.

- 6.1.3 Visits to Murchison and Eastern Goldfields where the Child Health Nurse acts as a resource to the various health agencies in these remote areas of the State.

TABLE 7

TOTAL CHILDREN EXAMINED

0-1 Year	203
1-2 Years	128
2-5 Years	260

7. 1980 PROJECTS

7.1 Play Information Mobile Service (PIMS)

This new venture commenced during the International Year of the Child and has proved most successful. The gaily painted mobile van is now a familiar sight out and around metropolitan suburbs.

There are three staff members; an occupational therapist and two nurses who spend half time each on PIMS.

7.2 Objectives

7.2.1 To make available to parents information about normal child development and expected capabilities. That Information is allied with appropriate suggestions about play and play materials, thus allowing positive enjoyable family relationships to develop and continue.

7.2.2 To present to parents information which will encourage them to observe their children and deepen their understanding of each child as an individual through provision of play/learning experiences which will help the child to reach his/his potential.

7.3 Ways of Meeting Objectives

Through sessions with groups of parents. In the sessions the subject of play in general is discussed, and there is opportunity for some demonstration of play materials. Probably one of the most valuable aspects is that parents are stimulated to talk together about ideas and problems. Many have been observed relaxing in attitude as they realise others have the same problems, (or worse) and that their child's behaviour is normal for stage of development.

7.4 Areas of Operation

The Section has been happy to visit groups of parents throughout the metropolitan area, and is grateful to staff members of Community and Child Health and other organisations for publicity and inviting people for sessions in centres.

Geographically the Section has visited suburbs from Kwinana and Wanneroo and North Beach to Kalamunda. It has also been pleasing to be invited by people from different educational and economic backgrounds.

Also the Section has been in contact with a number of parents in

outback areas through correspondence.

Several parents attending PIMS groups had lost contact with Community and Child Health, so the opportunity was taken to encourage attendance, and make known the range of services available.

The Section also has been pleased to talk to other groups of people. For example, CYSS groups and high school groups.

TABLE 8

TOTALS FOR 1980

PIMS visits to pre-school,)		
Child Health Centres,)	141 groups (parents + children)	
Play groups, private homes)	1,477 in attendance	

Other Groups

OSCCA	1 group(s)	attendance	20
CYSS	9	"	129
Women's Refuges	2	"	14
Parent Special			
Education Service	1	"	15

7.5 Aboriginal Child and Maternal Health (Metropolitan Region only)

Aim to follow up all babies born December 1979 to December 1980 in order to

- promote breast feeding
- encourage immunisation cover
- ascertain whether aboriginal mothers were utilising child health facilities either within Community and Child Health Services or Aboriginal Medical Service.

TABLE 9

ATTENDANCES AT CHILD HEALTH FACILITIES
OF METROPOLITAN ABORIGINAL INFANTS

Attending Child Health Centres	21
Attending Aboriginal Medical Service	7
Attending Community Health Centres	21
Refuse above services	6
Accept home visits	2
Stillbirth - 20 weeks gestation to birth	1
Perinatal deaths 0-4 weeks	1
Infant mortality 4 weeks - 1 year	2
Transfer out of area	8
Still home visiting	2
	71

PRE-SCHOOL HEALTH TEAM

1. ACTIVITIES

1.1 The overall aims of the Pre-School Health Team remain the same as previously, namely an integrated preventive child health service to all children in day care in the metropolitan area; and health education and advice to the caregivers and parents.

2. TARGET POPULATION

- 2.1 There has been an unprecedented turn over of ownership of private day care centres this year - 25 and a few have been sold at least twice. 5 centres have closed down - 3 by the Department for Community Welfare.
- 2.2 The mobility of the children remains very high and this is confirmed by the number of medical records held in the central office. There are at least 450 medical cards for children starting school in 1981 who have not been able to be traced after they left day care over the past year or so.
- 2.3 Nardine Women's Refuge is visited weekly but the nurse is offered as a mother and child resource person rather than attempting to screen the children all of whom are, understandably, emotionally disturbed.
- 2.4 The new Lady Gowrie Centre opened in September and is offering a range of child care services as well as pre-school education.

TABLE 10

NO. OF CHILD CARE CENTRES AS AT AUGUST 1980

Day Care	66	(50 private and 16 government subsidised)
Occasional Care	17	
Family Care	252	71 (private)
	Balga Scheme	22)
	Wanneroo Shire	103)
	Communicare	29) government
	Town of Cockburn	27) subsidised

TABLE 11

POTENTIAL ENROLMENT OF CHILDREN

Day Care		2024 (actual population 3157)
Family Care	+	1008
Occasional Care	-	N/A

TABLE 12
NURSES WORKLOAD

	Total
No: visits to D.C.C.	934
Counselling contacts:-	
with parents	443
with staff	760
with E.C.S.	112
Home visits	81
No: Full Health Appraisals	1838
No: Review Examination	485
No: Referred to:-	
Medical Officer	65
Family Doctor	35
Speech Therapist	31
Social Worker	12
Hospital	5
N.A.L.	24
Dental attention	46
Home attention (Immunisation)	37
Physiotherapist and Occupational Therapist	5
E.C.S.	4
Psychologist	1
TOTAL REFERRALS	265

Out of 2323 total children examined, 265 were referred for assessment giving a defect incidence of 11.4%. These are children not previously known to have a medical or social disability.

The children who have major physical or intellectual handicaps are already under medical supervision and the medical officer may then obtain information to help with appropriate management.

CHILD DEVELOPMENT CENTRE

The Child Development Centre came into existence in 1976 with the present purpose built building funded through the Commonwealth Community Health Programme, being occupied in September 1977. 1979 was the first year that the full multi-disciplinary team had been in operation and 1980 has been a year of consolidation. The Child Development Centre exists as a facility for the multi-disciplinary management of children and families with a range of developmental problems.

The staff employed at December 31, 1980 was:

- 1 Paediatrician
- 2 Registrars
- 1 Senior Social Worker
- 1 Social Worker
- 1 Senior Speech Therapist
- 1 Speech Therapist
- 1 Nurse Co-ordinator
- 3 Child Health Nurses
- 1 Senior Occupational Therapist
- 1 Occupational Therapist
- 1 Senior Physiotherapist
- 3 Typists
- 1 Clerk/Typist
- 1 Clerk

Part-time sessional staff:

- 1 Paediatrician
- 3 Speech Therapists
- 1 Psychiatrist
- 1 Occupational Therapist
- 1 Developmental Psychologist
- 2 Clinical Psychologists
- 1 Educational Psychologist

The contribution of part-time professionals continues to be an invaluable and indispensable component of the service. Teams involved in areas other than the Child Development Centre for the ongoing assessment and management of children: Koondoola Special School for handicapped children, Willetton Special School for handicapped children, Princess Margaret Hospital for Children, King Edward Maternity Hospital, Ngai-a Mothercraft Home and other facilities of the Community and Child Health Services are assisted regularly.

1. CLINICAL WORK

Children may be referred to the Child Development Centre by any professional who has been involved in the child or family management. On receipt of a request for a referral, Intake Committee considers whether the referral is appropriate to this Centre and if not recommends an alternative. If the problem is appropriate, a decision is made as to which of the team will become first involved with child

and the family and in what order and a Case Manager is allocated. This decision is then discussed where relevant by the full team and the referree and the family notified.

TABLE 13

REFERRAL PATTERN

1977	261
1978	595
1979	1,199
1980	1,147

It is likely that the referral pattern has steadied with the full team now in operation but it is noted that whereas 1,147 referrals were made during the year, 1,253 new clients were actually seen.

TABLE 14

CLINICAL COMMITMENTS

	1979	1980
New cases seen	1,171	1,253
Review appointments	1,087	1,203
Ongoing treatment	2,106	2,651
Telephone follow-up	3,178	4,567
Patients seen elsewhere	2,517	2,494

Though the referral pattern has steadied, the ongoing management responsibilities have increased, the increase in the use of telephone contact with families to reduce clinic attendances is noted.

The overall pattern has remained similar but changes from 1979 are indicated in brackets in the following table:

TABLE 15

SOURCES OF REFERRAL

WITHIN THE SERVICE	NUMBER	PERCENTAGE
Child Health Nurses	362	31.6 (28%)
Internal from CDC Team	129	11.2
Medical Officers of Community and Child Health Services	121	10.5
School Health Nurses	22	1.9
Pre-School Nurses	11	0.9
Community Health Nurses	5	0.4
TOTAL	650	56.7

	NUMBER	PERCENTAGE
OUTSIDE COMMUNITY & CHILD HEALTH SERVICES		
General Practitioners	137	11.9 (7.75)
Education Department -		
Guidance Officers	116	10.1
Teachers and Principals	47	4.09
Direct Parent Referrals	106	9.2 (7.8%)
Dental Health	38	3.3
KEMH & PMH	19	1.6 (3.5%)
Community Welfare	7	0.6
Child Guidance	2	0.2
Miscellaneous	25	2.17
	497	43.30

Referrals from within Community and Child Health Services remain overall the same with an increase in referrals from Child Health Nurses. General practitioners referrals have increased significantly as have direct parent referrals. There has been a decrease in referral from Community Welfare and from other medical specialities.

It is to be noted that 27% of the referrals were from country areas. This points to the need for an improvement in services to country families with visiting professionals and the eventual establishment of country based multi-disciplinary teams.

The types of problems referred fall in the major groups of:

- 1 Suspected developmental delay
- 2 Behavioural difficulties
- 3 Speech and language problems
- 4 Physical disabilities
- 5 Learning disabilities

The bulk of the children seen are in the pre-school years providing opportunity for appropriate support, counselling, early management and prevention of secondary problems.

2. MANAGEMENT

Individual treatment programmes where relevant are organised either within the Child Development Centre or at other sites. Waiting lists for individual therapy have been too long particularly for occupational therapy (40) and speech therapy (88).

Management in a group setting is an alternative for some problems:

Social Workers conducted three parent groups relating to management strategies of pre-school children and an innovation was the commencement of a self esteem group for school children between the ages of 10 to 12. Because of the success of these groups, more are scheduled.

Occupational therapists and physiotherapists conducted a group over 39 sessions (4 to 5 children in each group) for disabled pre-school

children concentrating on mobility and every day activity skills. Parents have been involved with this group and have had a separate time for discussion concerning care of children with handicaps.

Speech therapists have conducted three groups for mothers of 2½ to 3½ year old children concerning language development and techniques to assist their children.

3. EDUCATIONAL ACTIVITIES

One of the centre's major functions has been in post graduate and under graduate education of students from a range of professions who are involved in the centre for varying periods of training time. The centre has three full time registrar training posts for paediatricians in advanced training with appointments being usually for twelve months and occasionally for six months (in co-operation with Princess Margaret Hospital). Training placements in the other disciplines range from one week to three months and are constantly sought.

Professional staff are involved regularly in seminar and lecturing commitments and some 211 lectures were given throughout the year. For the fourth year, a five week course in Developmental Paediatrics for medical graduates was conducted from September 29 to October 31. Six participants were from within Western Australian services and five came from interstate, one participant being a post graduate from Japan. Throughout the year two week long courses of training in the use of the Griffiths Developmental Scales for Children were held.

The centre staff has been involved in the making of educational tapes, slides and video programmes as well as involved in public lectures and radio talk-back programmes.

4. RESOURCE

A resource display area within the Child Development Centre building demonstrates equipment available for children with developmental problems as well as ideas concerning child rearing and child play. The Play Information Mobile Service (PIMS) which was established in 1979 provides materials and resources to parents of children in disadvantaged areas. The following table (Table 16) shows the types of groups with which PIMS are involved. In addition to mobile group work a central toy resource and play display unit has been established together with production of appropriate literature.

TABLE 16

P.I.M.S. GROUPS		
	No. of Group Sessions	Total Attendance
Parent groups	141	1,477
Parents of handicapped	4	90
Professionals	9	116
Students	30	666
Other	15	192

The Child Development Centre throughout the year has been preparing a series of pamphlets concerning positive approaches to parenting from pre-school through to adolescence.

5. CONFERENCES

The paediatrician in charge attended the Annual Conference of the Australian College of Paediatrics held in Sydney in May 1980 at which he delivered a paper entitled "A Neurodevelopmental Study of 113 infants of birth weights of 1,500 grams or less born between 1975 and 1978". The senior occupational therapist attended an Occupational Therapy Conference in Hobart in August 11-14.

Several speech therapists attended the Annual Conference of the Australian Association of Speech and Hearing held in Perth in February 1980 entitled "Linguistics in the 80's". Ms Britten presented a paper "Prevention - the role of the Speech Pathologist".

6. EVALUATION OF THE SERVICE

Parameters to measure the effectiveness of programmes in developmental areas are difficult to define. During 1980 two medical students undertook a survey of parents who had utilised the Child Development Centre between June and December 1979. 170 out of 250 people responded. Of those responding it was noted that two thirds of the children seen were five years of age or younger, the male to female ratio being 2:1. The average family size was 2.5 children, 71% of the children coming from families of two or three children. 9% were from single parent families, 5% were noted to be adopted.

25% thought that the delay between requesting and receiving an appointment was too long but 99% found the staff friendly and helpful. 14% only would have liked child minding facilities. 75% of the children were seen by a paediatrician on at least one occasion and 90% of these were satisfied with the advice and information given. One out of five however did not feel that they had received adequate explanation other than when it was a consultation with a paediatrician. Overall more than 90% of people were satisfied with all professional services offered and only 7% thought that visits to the Child Development Centre were unnecessary. It was of interest that 94% felt that the services should be free of charge. 97% indicated that they would recommend the Child Development Centre to friends, 69% being "very satisfied" and 26% "fairly satisfied" with the service. The survey has been useful in pointing to further improvements in the centre's functioning.

7. AREAS OF NEED

Up to a third of the families referred to the Child Development Centre come from remote areas. There is a need for the team to travel both North and South. This has not been possible particularly for the time and to some extent financial reasons.

Problems of parent/child relationship in management are of great concern. A beginning has been made in offering group discussion and support through short courses, but this facility needs to be expanded, additional staff trained and the scope of the programme expanded.

The health and needs of adolescents in the Western Australian community is substantially neglected and community based facilities for concern with the preventive health aspects of the adolescent need to be established.

With the expansion of the centre's clinical and educational responsibilities over the past few years space has become an acute problem. There are not enough facilities for older children needing physiotherapy and occupational therapy. Areas for small groups and particularly parent discussion are lacking and there are insufficient areas available for individual professional work.

Lengthy waiting lists particularly in speech therapy and occupational therapy highlight the need for increased staffing.

COMMUNITY HEALTH SECTION

1. INTRODUCTION

The basic aim of Community Health Services remains the same as stated in the 1979 Annual Report.

This can be summarised as aiming to promote health in those individuals or groups of greatest need with the emphasis on environmental or social change designed to produce permanent improvement in health rather than on short term therapeutic activities. The groups of clients include aborigines, pensioners, migrants, isolated communities, single parents, handicapped persons and the homeless. The major activities of the staff include health education, immunisation, monitoring the growth and development of children, accident prevention, family planning, management of childhood illnesses, infectious disease control, psychosocial problems and clinical services in some remote areas.

2. FUNDING

Community Health Services receives funds from both State and Federal sources. Federal funds are allocated to this Section from the Department of Aboriginal Affairs to improve health amongst aboriginal people using the guidelines set out above. The Health Division through its Community Health Programme funding arrangements supplies money for a variety of general programmes details of which are included in the body of this report. The State Government supplies supplementary funds to both of these broad programmes. Since approximately 70% of the total monies received come from the Department of Aboriginal Affairs for the specific purpose of improving health amongst aboriginal people it will be appreciated that a similar percentage of the work is directed to that aim and similarly what may appear to be a disproportionately large section of this report will deal with aboriginal health.

3. ADMINISTRATION

In March 1980 the Kimberley Region was established as a separate autonomous public health region directly responsible to the Deputy Commissioner of Public Health. This move is a pilot scheme to assess the benefits and problems associated with regionalisation. The main aim of regionalisation is to allow the people who are on the spot to make decisions and take actions which they consider most appropriate for local needs without having to refer their decisions to Perth for ratification. Dr. R. Spargo was appointed Regional Director of Health for the Kimberley Region being ably assisted by Sr. P. Humphris as Regional Nurse Administrator, and Mr. J. Altimira as Administrator.

Since the Kimberley Health Region is now totally responsible for managing their share of the total budget for their own staff recruitment and programme priority planning this has meant a reduction in the work load for senior administrative staff in this office. The reduction has been appreciated and it has meant that greater attention can be given to the other Regions. Accordingly this report does not

include details of staff figures for the Kimberley Region. Since computer facilities for counting work loads and measuring various health parameters are still shared this report will include client statistics for the whole State.

The other occurrence of note during 1980 was an anticipated shortfall of funds at the end of the 1980-81 financial year. This financial crisis was aggravated by increases in wages greater than anticipated in the budget. After a general review of all programmes and an assessment of the areas of greatest need it was decided to greatly reduce the commitment to aboriginal health as a specific entity in the Metropolitan Region. This was done because the prevalence of preventable disease amongst Metropolitan aborigines is not significantly different from Metropolitan non-aborigines and because of the existence of a wide range of other health and welfare services in the metropolitan area. This change was effected without the retrenchment of any staff, but several staff transferred to other Branches of the Service, or to country centres. The change was of course associated with feelings of job insecurity by many people and it will be some time before these anxieties finally settle. It is to be hoped that such funding crises will not occur in future years. Further explanation of these changes is included in the body of the Report.

3.1 Staff

Table 1 shows the staff employed at 31/12/80 excluding the Kimberley Health Region. It will be noted that most areas are below approved establishment strength because of budgetary restrictions.

3.2 Staff Training

During 1980 combined orientation programmes in conjunction with School and Child Health were held in February, May and September. 45 nurses attended these orientation programmes.

Other Study Courses

Three nurses are continuing their studies at W.A.I.T. School of Nursing to obtain higher degrees in nursing. One nurse is studying at the Lincoln Institute. Three nurses are on Study Leave without pay while doing their Midwifery Courses.

Sr. J. Wishart was successful in being awarded a Helen Bailey Overseas Scholarship. Accordingly she was granted 12 weeks leave during which she visited England to undertake a course on Death and Dying. Our congratulations are extended to her.

During 1980 two aboriginal Nurse Aides left our employ to commence general nurse training at W.A.S.O.N. We wish them every success.

In August 1980 a Conference for registered nurses was held as a Combined Inservice for nurses working in School, Child and Community Health Services. Combined regional meetings usually of one days duration were also held at Geraldton, Kalgoorlie, Port Hedland, Derby, Kununurra, Northam, Katanning, Bunbury, Jigalong, Roebourne, Fitzroy Crossing, Broome, Carnarvon,

Meekatharra, Port Samson and Halls Creek during the year.

Aboriginal health workers from the Pilbara and Kimberley Regions had a combined conference in Kununurra in April. Those from the Eastern Goldfields and Northern regions had one at Geraldton in September and the health workers from the Metropolitan and South West Regions held one in Perth in July.

Because of the relative professional isolation of many of our staff these conferences and workshops are extremely important for maintaining work standards and revitalising the morale of isolated staff. They are a positive investment.

3.3 Centres Opened/Closed During 1980

Manning	-	Opened	-	20/11/80
Karawarra	-	Opened	-	27/05/80
Langford	-	Opened	-	20/10/80
Mt. Margaret	-	Opened	-	01/07/80
Newman	-	Closed	-	May, 1980

4. WORKLOAD 1980

Table 2 shows the total number of people who were listed as clients during 1980. All racial groups and all age groups are represented. Aboriginal people represent 75.3% of clients and children under 15 years represent 32.3%.

Table 3 shows the total number of client contacts for each region during 1980. Altogether there were 326,873 recorded client contacts. Of these contacts 243,005 or 74.3% were with aboriginal clients. During 1980 some changes were made in the coding format used to record client contacts. This has simplified and streamlined recording procedures for field staff and has not caused any loss of conciseness in coding.

Tables 4 and 5 show the encounters for each Region for aboriginal and non-aboriginal clients under each of these new headings, for the last 5 months of 1980.

Table 6 shows the race and area specific discharge rates from West Australian Hospitals in 1979. It will be seen that the aboriginal hospital discharge rate in the metropolitan area is almost the same as the non-aboriginal rate. Also from Table 3 it can be seen that only about half of the client contacts in the Metropolitan region were with Aboriginal people. These were two of the factors involved in deciding to decrease the commitment to aboriginal health in the metropolitan area.

4.1 Under-fives Programme

The monitoring of the growth and development of aboriginal children has always been an important part of Community Health Section's function. During 1980 a special emphasis has been placed on this programme and some methodological changes made to assist staff in this work. A special instruction booklet has been prepared for Aboriginal Health Workers to assist them in the monitoring of the growth and development of aboriginal children. Also the department has developed a yellow card to be

used by the health worker when seeing each child. The yellow card contains identifying information, a good health check list, an ill health check list and a percentile chart for weight. The most important factor in maintaining good health in children is adequate nutrition. Tables 7 and 8 show the percentage of aboriginal boys and girls born in each year, who are below the third percentile at specific ages.

By definition it is normal for three percent of children to be below the third percentile and up to the age of six months this approximately holds true for aboriginal children. However, after the age of six months the number of children below the third percentile increases dramatically and at the age of 12 months 27.6% of boys born in 1974 were below the third percentile as were 20.3% of girls. Over the next three years of life there is a gradual catch up, but the weight loss is never fully recovered. By 1979 the percentage of boys below the third percentile at the age of 12 months had been reduced to 20.6% - a reduction of 7%. For girls the percentage was 13.1% - a reduction of 7.2%. These figures are encouraging and it is hoped that with the added emphasis of the Under 5's programme these figures can be further improved.

4.2 Ear Disease

Ear disease has for many years been a problem amongst aboriginal children. During 1980 doctors working in Community and Child Health Services developed an Ear Health Programme. This programme included instruction in

- (i) The normal anatomy and physiology of the ear, common ear diseases, causes of hearing loss, care of hearing aids.
- (ii) Detection of abnormalities in otoscopic examination especially discharging otitis media.
- (iii) A refresher course in using audiometers to screen for deafness.
- (iv) Instruction in treating discharging otitis media by syringing the ears with water.

The ear health programme took two days to deliver and the team went to all parts of the state giving instruction to trained staff and health workers. The programme was well received and staff now feel much happier about dealing with the problems of ear disease.

The ear health team also did a study in the Goldfields of the prevalence of ear disease amongst children at Laverton, Leonora, Cosmo Newbury, Mt. Margaret, Menzies, Cundeelee and Norseman. Of the 306 aboriginal children seen 92 (32%) were found to have some degree of hearing loss and 109 (36%) were found to have at least one perforated tympanic membrane. It is intended to do further ear health screening programmes during 1981.



EAR HEALTH, ROEBOURNE

4.3 Eye Disease

Community Health Services staff work in close co-operation with the Western Australian Branch of the Australian College of Ophthalmologists, in referring people who have any eye disease and also in screening programmes for the diagnosis of trachoma and its subsequent treatment amongst affected individuals. Table 9 shows the screening work performed in the various regions during 1980. Most of the active trachoma which will respond to treatment with antibiotics is found amongst preschool and school age children and most of the screening programmes concentrate on these age groups. Amongst the older people the main problems are defective vision due to a number of causes and the chronic sequelae of trachoma which may require surgery. During 1980 two teams of Ophthalmologists visited the Murchison and Goldfields regions. They were involved in both aspects of the work mentioned above and also in staff training. Further visits by teams of Ophthalmologists are planned for 1981. This is an ongoing programme and it is anticipated that eye health will not improve substantially until standards of hygiene and nutrition are improved.

4.4 Alcohol or Other Drug Abuse

Community Health Services does not consider itself to be an authority on the subject of alcoholism nor of its treatment. We do however work in close liaison with the Alcohol and Drug Authority, Kulila, Wandering-Wardinyi and the Aboriginal Medical Service. Community Health Section are also responsible for paying the salaries of 4 Aboriginal Alcohol Counsellors seconded to the Alcohol and Drug Authority. Many clients' lives are influenced by people with alcohol problems and staff must always take cognizance of this in their dealings with aboriginal families. Where alcoholism was listed as the main reason for the encounter this means that the encounter was either attempting to get the person to undertake treatment for their alcoholism or organizing treatment for illnesses secondary to the alcoholism. We believe that problems associated with excessive alcohol consumption will slowly improve as aboriginal people gain greater access to education, job opportunities and equality in the wider Australian community.

5. MEASURING CHANGES IN ABORIGINAL HEALTH

5.1 Aboriginal Infant Mortality

Tables 1A-4A in the Director's introduction show the Aboriginal and non-Aboriginal infant mortality statistics from 1971-1979. As can be seen from the Tables there has been a general improvement in all categories over the time except for the aboriginal still-birth rate which may have been inaccurate for some reason in 1978. The stillbirth and neonatal death rates for aborigines are still approximately twice those of the non-aboriginal population, while the post-neonatal death rate is still approximately 5 times higher. These figures are not adjusted for maternal age and previous parity both of which affect the outcome of pregnancy, but they do not as yet represent a state of affairs about which we can be complacent. During 1980 an obstetrician commenced

practice in the Kimberley, and there is now a greater provision of paediatric services to remote areas. Coupled with increased emphasis by this Section on earlier and more regular attendance for antenatal care there should be continued improvement each year.

5.2 Aboriginal Hospital Discharge Rates

Hospital discharge numbers for aboriginal and non-aboriginal people have been included in this report since 1971. It has been difficult however to calculate aboriginal hospital discharge rates because of the difficulty of ascertaining the aboriginal population to be used as a denominator in these calculations. For several years Community Health Section has kept a record of all the people with whom they have had contact including aboriginal people. From these contacts and knowing most of the births and deaths that have occurred it has been possible to build up a composite picture of the aboriginal population at any time. Table 10 shows the Community Health Section calculated aboriginal population from 1971-1979 by 5-year age groups.

Tables 11-15, show the aboriginal hospital discharge rates for the five conditions having the highest discharge rates across most age groups. While the results are not dramatic they do show definite trends. Discharges for illnesses of an infective and parasitic nature have gradually decreased and perhaps these changes can be attributed to gradual improvement in living conditions and the work of our staff.

Similarly other disease categories which could be attributed to infection have shown a gradual decline. Amongst the older age groups where the diseases represented are more of a chronic nature or infection superimposed on a chronic background the discharge rates have in general increased. This may represent a worsening of the situation or it may represent greater willingness to accept hospital care perhaps because of changes in hospital costs that have occurred over the years. It may perhaps also represent better case finding by our staff and willingness by the client to accept hospital treatment if that is recommended.

Discharges because of accidents, poisonings and violence have increased amongst adults. The factors mentioned above also apply here and it also shows the difficulties health workers (doctors, nurses and aboriginal staff) face when they try to change an individual's life-time behaviour patterns.

6. ABORIGINAL HEALTH WORKER TRAINING

Since its inception it has been the policy of Community Health Section to employ aboriginal people from each community as aboriginal health workers. The health worker is concerned with two broad areas, namely - the promotion and maintenance of health and social and community development. These are achieved through

- liaison between the client group and health professionals

- assisting in the isolation and definition of issues of importance to individuals, families or specific groups and then assisting in developing methods of managing those issues.
- monitoring health, growth and development with the ability to assess normal from abnormal and to advise, manage or refer according to specific criteria.

The implementation of training programmes for health workers has over the years been hampered by the following factors:

- i) the wide range of skills, abilities and interest of individual health workers and the diversity of needs of the people with whom they work.
- ii) the wide differences in cultural, educational and experiential background which result in difficulties in language useage, particularly in understanding and conveying concepts.
- iii) the long distances and remoteness of areas in which many of the staff work.
- iv) the need to help field nurses develop teaching skills to help them in their day-to-day teaching of health workers.
- v) the low ratio of educators to health workers.

Despite these difficulties, a continuing programme of general education has been arranged for all health workers who have not succeeded at second year high school level through the Mt. Lawley College of Advanced Education.

As well as this Health Worker Training Manuals have been produced and are being modified as more experience is gained with their use.

7. ABORIGINAL HEALTH CO-ORDINATOR

As a further means of improving communications and attempting to provide appropriate services to aboriginal communities it was decided to create the above position. A Job Description was drawn up and the position advertised. There were several promising applicants and Rev. C. Jacobs agreed to be a member of the interview panel which finally chose Mr. H.G. Willaway for the position. He commenced duty in late October, 1980. It is hoped that this position will do much to decrease misunderstandings between this department and aboriginal communities.

8. SPECIALISED NURSING ROLES

W.A. Arthritis and Rheumatism Foundation

During 1980 four (4) field staff were employed full time in this capacity. Re-allocation of work areas and the introduction of new guidelines for the home visiting programme were introduced in January 1980. This has meant a reduction in the kilometres travelled and

home visits performed by specialised staff as shown below.

	<u>1979</u>	<u>1980</u>
Home visits	2,266	994
Kilometres travelled	117,412	80,338

This has not meant a reduction in service as staff in local areas have performed the work, having attended in-service at Shenton Park Rehabilitation Hospital and on the spot advice from the specialist W.A.A.R.F. Sisters.

Hansens Surveillance

One field nurse employed full time in the followup and surveillance of people with Hansens Disease, in the Southern half of the State. Another field nurse does Hansens disease screening in the Kimberley Region. During 1980 there were 9 notifications of Hansen's disease - 2 from the metropolitan region, 3 from the Pilbara and 4 from the Kimberley Region.

In the Metropolitan Region 41 Hansens's disease clinics were held throughout the year. Hansens disease screening for school children on Commonwealth Grants from the North West was carried out on 187 children.

Multiple Sclerosis

One field nurse employed full time working with patients suffering from multiple sclerosis and their families.

She works in close conjunction with general practitioners, neurologists and the Multiple Sclerosis Society of which many sufferers are members. She acts as a resource person to country centres but does not visit other parts of the State.

Independent Living Centre

One field nurse is employed full time at the Independent Living Centre. She has continued to work with the other team members giving talks, attending and participating at seminars, assisting in the compiling of an information bank of available aids, and supplying information to the public.

Muscular Dystrophy

One field nurse is employed full time working with the Neuropathology Department of Royal Perth Hospital and patients with muscular dustrophy. The work consists of home visits to individual patients in co-operation with the general practitioner and the above Department. The work has also included assisting in carrier detection tests and compiling family pedigrees of diagnosed cases.

Table 16 shows the clients with whom the sister was in contact during 1980.

Flight Sisters (attached to the RFDS - W.A. Section)

The work of the Flight Sisters has continued during 1980. Table 17

shows the work done by this group. It is considered more appropriate that the work of the Flight Sisters should be completely administered and funded by the Royal Flying Doctor Service and at present staff working in the West Australian Section of the RFDS are gradually being transferred from Community Health Section control to RFDS control. Community Health Section will continue to control staff in the Eastern Goldfields Section pending further negotiations on this matter, and the Kimberley Health Section will continue with Flight Sisters in the Kimberley, (Victorian Section).

Hospital Liaison (Formerly Communications & Escort)

Staff - 2 full time Field Nurses
- 1 part time Field Nurse

The main role of this group is to visit all major metropolitan hospitals regularly to initiate and maintain Community Health Section's contact with the patient and his health care providers. Medical reports are provided to country bases, and the patient's family. A big effort is still made in trying to reduce the cultural trauma to the more isolated tribal aboriginal clients, and to facilitate hospital discharge as soon as possible after the patient is fit.

The staff assisted with the liaison and discharge of 665 aboriginal clients from the various metropolitan hospitals.

Information Centre

Over the past two years one of the full time Hospital Liaison Field Nurses has maintained an information service for the public during office hours on week days. By taking this responsibility she has freed other staff from being interrupted to answer a multitude of public questions and has permitted the switchboard operator to pass on these calls rapidly. Altogether 3302 calls were received during 1980.

Vietnamese Refugees

During 1980 refugees from Vietnam continued to arrive as immigrants to Western Australia. Table 18 shows the number of arrivals each month. As in previous years an initial health screening was performed on these people soon after arrival and the results of these screening tests are included in Table 19. This table does not include diseases discovered some time after arrival. Up to the end of August, 33 cases of vivax malaria occurred and following the recommendations of Professor R. Black medical treatment of all incoming Vietnamese immigrants was started in September 1980. Apart from this change the work has continued routinely and is accepted as an important part of helping the confused and sometimes ill immigrant to make a healthy start in Australia.

CONCLUSION

The road to good health is never ending. As one problem is overcome, another immediately emerges as the most pressing problem of the time and it in turn has to be overcome. Over the last ten years there have been marked improvements in aboriginal health but there is still no room for complacency and the work must continue. It is obvious to field

workers that changes in hygiene habits and nutritional practices are still required and that these changes will come as facilities improve, people come to feel that they have a *raison d'etre*, people appreciate that they have a range of choices about how they live, and people have the financial power through education and employment opportunities to exercise that range of choices. These things are already happening, but the momentum will increase in the next few years.

Finally, I wish to thank all the staff for the unstinting work they have performed during the year and for the ready assistance given by them to the Administration Section.

I also wish to acknowledge the statistical information supplied by Dr. M. Lugg of the Statistics Branch and by Dr. F. Stanley of the N.H. & M.R.C. Research Unit in Epidemiology and Preventive Medicine.

TABLE I

COMMUNITY HEALTH SERVICES STAFF AS AT 31/12/80
(Excluding the Kimberley Health Region.)

Classification	Approved Establishment	Actual
<u>Medical Staff</u>		
Director	1	1
Deputy Director	1	1
Senior Medical Officer	1	1
Regional Medical Officers	6	4
Medical Officers	8	8
TOTAL MEDICAL STAFF	17	15
<u>Nursing Staff</u>		
Nurse Supervisor	1	1
Deputy Nurse Supervisor	1	1
Assistant Nurse Supervisor	1	1
Regional Nurse Supervisors	7	7
Field Nurses	186	148
Nurse Aides	55	(10
Health Assistants (Abor.)		58* (30 (F)
		(18 (M)
Camp Nurses	**	20

* Some health workers are employed part time so that two people sometimes occupy one item number.

**Employed as local liaison people as the needs of individual community dictates.

TABLE 2

COMMUNITY HEALTH SERVICES CLIENTS - 1980

AGE - IN YEARS

SEX & RACE	0 - 5	6-14	15-19	20-49	50-64	65+	UNKNOWN	ROW TOTAL	TOTAL %
CAUCASOID MALE	455	724	158	709	222	213	100	2581	5.9
CAUCASOID FEMALE	431	713	163	1270	219	273	176	3245	7.4
NEGROID MALE	1	3	1	2	3	2	1	13	.0
NEGROID FEMALE	2	2	2	3	1	0	1	11	.0
MONGOLOID MALE	315	489	340	1472	144	25	12	2797	6.4
MONGOLOID FEMALE	304	399	255	1150	82	30	8	2228	5.1
AUSTRALOID MALE	3008	4603	1822	4732	1133	739	459	16496	37.5
AUSTRALOID FEMALE	2828	4334	1816	5487	1064	656	428	16613	37.8
COLUMN TOTAL	7344	11267	4557	14825	2868	1938	1185	43984	
% OF TOTAL	16.7	25.6	10.4	33.7	6.5	4.4	2.7		100.0

TABLE 3.

COMMUNITY HEALTH SECTION TOTAL CLIENT ENCOUNTERS 1980.

	0-5	6-14	15-19	20-49	50-65	65+	UNKNOWN	TOTAL
<u>KIMBERLEY WEST</u>								
Aboriginal	11277	6453	2655	10783	7197	2268	7054	47687
Non-Aboriginal	1717	110	58	521	117	199	140	2862
Unknown Race	37	3	-	20	1	-	1	62
Total	13031	6566	2713	11324	7315	2467	7195	50611
<u>KIMBERLEY EAST</u>								
Aboriginal	6099	5109	1745	6051	3060	2408	3339	27811
Non-Aboriginal	1509	960	230	491	108	136	169	3603
Unknown Race	65	42	-	120	118	408	-	753
Total	7673	6111	1975	6662	3286	2952	3508	32167
<u>PILBARA</u>								
Aboriginal	7133	4674	1676	6516	1979	1460	2272	25710
Non-Aboriginal	3481	898	196	1162	221	253	326	6537
Unknown Race	-	21	36	59	54	14	108	292
Total	10614	5593	1908	7737	2254	1727	2706	32539
<u>NORTHERN</u>								
Aboriginal	4084	3136	1038	6500	2218	1536	1800	20312
Non-Aboriginal	1193	360	83	733	246	223	38	2876
Unknown Race	3	4	8	15	11	37	10	88
Total	5280	3500	1129	7248	2475	1796	1848	23276
<u>GOLDFIELDS</u>								
Aboriginal	4607	5425	717	5099	1260	683	2030	19821
Non-Aboriginal	3156	1448	350	2459	846	2404	311	10974
Unknown Race	33	2	-	7	-	-	3	45
Total	7796	6875	1067	7565	2106	3087	2344	30840

TABLE 3. (Cont.) COMMUNITY HEALTH SECTION TOTAL CLIENT ENCOUNTERS 1980

	0-5	6-14	15-19	20-49	50-65	65+	UNKNOWN	TOTAL
<u>S/WEST NORTH.</u>								
Aboriginal	8749	4615	1152	7418	1934	833	2486	27187
Non-Aboriginal	3430	1051	259	2529	928	776	112	9085
Unknown Race	87	50	-	129	17	-	63	346
Total	12266	5716	1411	10076	2879	1609	2661	36618
<u>S/WEST SOUTH</u>								
Aboriginal	6164	3127	800	3382	658	333	4912	19376
Non-Aboriginal	3300	1092	211	1728	271	369	381	7352
Unknown Race	14	1	35	132	9	17	5	213
Total	9478	4220	1046	5242	938	719	5298	26941
<u>METRO NORTH</u>								
Aboriginal	10313	1905	831	4229	807	358	5298	23741
Non-Aboriginal	10975	2194	944	6629	1332	1078	2297	25449
Unknown Race	52	21	-	305	21	15	28	442
Total	21340	4120	1775	11163	2160	1451	7623	49632
<u>METRO SOUTH</u>								
Aboriginal	6125	1621	726	4527	1277	212	3827	18315
Non-Aboriginal	3934	405	319	2491	515	-	-	7664
Unknown Race	51	21	49	92	10	732	403	1358
Total	10110	2047	1094	7110	1802	944	4230	27337
<u>IRWIN</u>								
Aboriginal	4098	2463	669	2697	690	510	2108	13235
Non-Aboriginal	2	11	195	884	317	420	12	1841
Unknown Race	1536	254	9	2	35	-	-	1836
Total	5636	2728	873	3583	1042	930	2120	16912

TABLE 3. (Cont.)

COMMUNITY HEALTH SECTION TOTAL CLIENT ENCOUNTERS 1980

SUMMARY OF WEST AUST. TOTALS

TOTALS	0-5	6-14	15-19	20-49	50-65	65+	UNKNOWN	TOTAL
Aboriginal	68649	38528	12009	57202	21080	10601	35126	243195
Non-Aboriginal	32697	8529	2845	19627	4901	5858	3786	78243
Unknown Race	1878	419	137	1881	276	1223	621	5435
W.A. TOTAL	103224	47476	14991	77710	26257	17682	39533	326873

TABLE 4.

ABORIGINAL	KIMBERLEY	METROPOL.	S/WEST	GOLDFIELDS	NORTHERN	PILBARA	TOTAL
<u>ENCOUNTER CODES</u>							
UNDER FIVES PROGRAMME	3255	2169	2195	681	1284	1386	10970
HEALTH SCREENING	3222	1044	3881	2771	2018	2922	15858
EAR DISEASE	1289	312	1249	680	687	471	4688
EYE DISEASE	1669	111	240	1677	346	927	4970
HANSENS DISEASE	2314	51	10	1	8	111	2495
ANTE OR POST-NATAL CARE	874	308	494	248	259	220	2403
ACCIDENTS OR INJURIES	1571	120	668	746	1187	428	4720
ALCOHOL OR OTHER DRUG ABUSE	38	143	310	42	251	22	806
SKIN DISEASES	3278	443	1620	1418	1554	1848	10161
GASTRO-INTESTINAL DISEASE	529	114	221	171	221	223	1479
RESPIRATORY DISEASE	2742	134	601	830	828	947	6082
MUSCULAR DYSTROPHY	1	26	5	3	23	2	60
MULTIPLE SCLEROSIS	8	90	10	0	0	0	108
RHEUMATOID ARTHRITIS	33	13	67	65	205	10	393
EXTENDED CARE						1	1
BALGA OUTREACH		82					82
HOSPITAL VISITS METRO		635					635
OTHER	12957	14938	11293	2699	8824	3185	53896
GRAND TOTAL	33780	20733	22864	12032	17695	12703	119807

TABLE 5.

NON - ABORIGINAL ENCOUNTER CODES	KIMBERLEY	METROPOL.	S/WEST	GOLDFIELDS	NORTHERN	PILBARA	TOTAL
UNDER FIVES PROGRAMME	877	1433	672	719	261	788	4755
HEALTH SCREENING	1240	306	522	118	212	306	2704
EAR DISEASE	474	92	131	43	16	30	786
EYE DISEASE	212	168	90	333	31	64	898
HANSENS DISEASE	151	172	0	0	1	1	325
ANTE OR POST-NATAL CARE	57	287	142	163	46	66	761
ACCIDENTS OR INJURIES	261	149	324	242	115	61	1152
ALCOHOL OR OTHER DRUG ABUSE	6	80	111	21	21	4	243
SKIN DISEASES	1127	362	590	471	57	147	2754
GASTRO-INTESTINAL DISEASE	60	144	116	68	41	41	470
RESPIRATORY DISEASE	224	174	384	181	92	57	1112
MUSCULAR DYSTROPHY	0	156	0	4	15	4	179
MULTIPLE SCLEROSIS	0	377	11	7	1	0	396
RHEUMATOID ARTHRITIS	5	25	120	390	28	9	577
EXTENDED CARE							
BALGA OUTREACH		39					39
HOSPITAL VISITS METRO		2					2
OTHER	6715	7746	3241	2165	1134	700	21701
GRAND TOTAL	11409	11712	6454	4925	2076	2278	27445

TABLE 6.

RACE AND AREA SPECIFIC DISCHARGE RATES*
FROM W.A. HOSPITALS 1979

STATISTICAL DIVISION		POPULATION	DISCHARGES /'000	BED DAYS /'000
PERTH	Aboriginal **	8,874	220.4	1,551.8
	Non-Aboriginal***	874,726	203.6	1,397.3
	TOTAL	883,600	203.7	1,398.8
UPPER GREAT SOUTHERN	Aboriginal	845	1,409.5	12,400.0
	Non-Aboriginal	23,565	310.5	2,823.8
	TOTAL	24,410	348.6	3,155.3
MIDLANDS	Aboriginal	2,864	579.3	3,446.6
	Non-Aboriginal	49,746	285.5	1,996.5
	TOTAL	52,610	301.4	2,075.4
SOUTH WEST	Aboriginal	803	743.5	4,257.8
	Non-Aboriginal	87,827	290.6	2,275.5
	TOTAL	88,630	294.8	2,293.5
LOWER GREAT SOUTHERN	Aboriginal	869	871.1	6,856.2
	Non-Aboriginal	40,261	259.0	2,049.3
	TOTAL	41,130	271.9	2,150.1
CENTRAL	Aboriginal	4,951	656.6	4,501.3
	Non-Aboriginal	46,819	262.1	2,114.6
	TOTAL	51,770	299.8	2,342.8
SOUTH-EAST	Aboriginal	3,438	779.5	5,955.2
	Non-Aboriginal	38,022	290.6	2,862.5
	TOTAL	41,460	331.2	3,118.9
PILBARA	Aboriginal	5,349	420.1	3,816.2
	Non-Aboriginal	36,861	246.9	1,352.0
	TOTAL	42,210	280.6	1,664.3
KIMBERLEY	Aboriginal	9,024	521.4	5,178.3
	Non-Aboriginal	7,156	371.7	2,499.2
	TOTAL	16,180	455.2	3,993.4

SOURCE

* Hospital Morbidity Statistics 1979

** Aboriginal Affairs Planning Authority Annual Report

***A.B.S. Estimates

ABORIGINAL MALES - WEIGHT

TABLE 7

PERCENTAGE BELOW THE THIRD PERCENTILE

Year of Birth	2	6	9	12	24	36	48
74	6.6	6.9	20.6	27.6	23.4	20.7	15.6
75	8.0	4.2	23.6	25.2	18.8	16.3	17.5
76	5.1	8.0	19.5	26.0	24.0	17.9	N/A
77	5.5	6.1	15.2	20.6	19.7	14.6	N/A
78	2.5	5.6	12.1	21.8	21.3	N/A	N/A
79	2.9	6.9	14.6	20.6	N/A	N/A	N/A

N/A = Not Available

ABORIGINAL FEMALES - WEIGHT

TABLE 8

PERCENTAGE BELOW THE THIRD PERCENTILE

Year of Birth	2	6	9	12	24	36	48
74	-	4.1	9.4	20.3	18.5	19.6	14.7
75	1.6	11.3	6.2	17.2	18.0	19.5	10.6
76	4.4	7.4	15.0	21.5	13.8	15.6	N/A
77	4.5	8.0	13.1	20.6	15.8	17.9	N/A
78	2.4	9.2	12.1	18.2	11.8	N/A	N/A
79	.6	5.6	11.9	13.1	N/A	N/A	N/A

N/A = Not Available

TABLE 9

TRACHOMA SURVEYS 1980

AGE	0-4	5-9	10-14	15-49	50+	Total
<u>Kimberley</u>						
Number Seen	145	430	1201	557	-	2333
No. with Active Trachoma	63	89	418	41		611
% with Active Trachoma	43%	20%	34%	7%		
<u>Pilbara</u>						
Number Seen	260	260	197	438	-	1155
No. with Active Trachoma	94	111	48	20		273
% with Active Trachoma	36%	42%	24%	4%		
<u>Northern Region</u>						
Number Seen	142	154	64	-	-	360
No. with Active Trachoma	66	55	11			132
% with Active Trachoma	46%	35%	17%			
<u>Goldfields</u>						
Number Seen	27	355	225	83	-	690
No. with Active Trachoma	16	43	30	14		103
% with Active Trachoma	59%	12%	13%	17%		
Total Number seen						4538
Total No. with Active trachoma						1119

TABLE 10

ABORIGINAL POPULATION OF WESTERN AUSTRALIA

AGE	YEAR	WHOLE STATE									
		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
0 -		4503	4740	4920	5095	5209	5352	5306	5185	5003	4755
5 -		3551	3744	3946	4125	4312	4503	4738	4915	5088	5192
10 -		2762	2879	3062	3214	3404	3551	3743	3944	4120	4301
15 -		2085	2256	2352	2488	2613	2762	2878	3057	3203	3391
20 -		1689	1727	1848	1902	2027	2085	2256	2347	2480	2598
25 -		1281	1377	1406	1532	1566	1688	1725	1842	1893	2009
30 -		1257	1236	1284	1282	1361	1281	1376	1397	1520	1539
35 -		1041	1123	1134	1187	1167	1255	1231	1274	1260	1334
40 -		1046	1033	1059	1073	1124	1037	1120	1111	1148	1123
45 -		655	725	747	822	866	1043	1027	1040	1040	1074
50 -		702	675	734	713	730	647	714	723	779	809
55 -		460	483	476	539	541	700	673	724	682	689
60 -		514	537	565	541	560	453	474	466	523	501
65 -		757	924	886	963	1035	1243	1316	1362	1339	1364
UNKNOWN		976	976	976	976	975	974	963	949	935	929
TOTAL		23279	24335	25395	26452	27490	28574	29540	30336	31013	31608

ABORIGINAL
HOSPITAL DISCHARGE RATES PER 1000 PERSONS
INFECTIVE & PARASITIC. I.C.D. 000- 136.

TABLE 11

AGE - IN YEARS	YEAR								
	1971	1972	1973	1974	1975	1976	1977	1978	1979
0 - 4	382	292	350	334	310	346	278	270	260
5 - 9	39	39	33	35	23	38	34	27	24
10 - 14	35	21	16	24	19	15	26	16	23
15 - 19	27	23	18	27	20	19	18	17	13
20 - 24	24	27	18	28	20	19	16	20	19
30 - 34	24	17	19	19	18	20	21	17	16
40 - 44	29	17	13	22	27	24	15	14	24
50 - 54	24	22	21	19	23	25	18	13	20
60 - 64	34	39	26	25	35	37	49	23	

ABORIGINAL
HOSPITAL DISCHARGE RATES PER 1000 PERSONS
NERVOUS SYM & SENSE ORGANS. ICD.320-389

TABLE 12

AGE - IN YEARS	YEAR								
	1971	1972	1973	1974	1975	1976	1977	1978	1979
0 - 4	132	113	112	102	91	90	89	91	101
5 - 9	53	47	48	43	47	46	41	55	42
10 - 14	36	36	28	24	26	27	22	31	32
15 - 19	16	24	15	21	15	13	21	11	13
20 - 24	13	16	16	16	17	35	25	15	17
30 - 34	13	25	25	21	34	30	30	31	25
40 - 44	15	33	27	27	40	45	41	44	67
50 - 54	34	19	35	21	40	56	55	51	47
60 - 64	43	46	31	34	46	53	75	54	

ABORIGINAL

HOSPITAL DISCHARGE RATES PER 1000 PERSONS

RESPIRATORY SYM. ICD 460-519

TABLE 13

AGE - IN YEARS	YEAR								
	1971	1972	1973	1974	1975	1976	1977	1978	1979
0 - 4	402	454	432	379	366	364	360	354	433
5 - 9	69	73	82	74	88	68	56	62	77
10 - 14	39	52	49	42	41	35	30	43	43
15 - 19	33	49	35	31	41	33	31	38	36
20 - 24	39	44	39	32	58	39	43	40	47
30 - 34	57	36	64	54	66	57	56	53	59
40 - 44	76	87	87	75	102	96	94	95	87
50 - 54	110	109	95	81	111	134	124	126	144
60 - 64	95	133	146	163	194	175	137	138	

TABLE 15

ABORIGINAL
HOSPITAL DISCHARGE RATES PER 1000 PERSONS
ACCIDENTS, POISONING, VIOLENCE. ICD. N800-N999

AGE - IN YEARS	YEAR								
	1971	1972	1973	1974	1975	1976	1977	1978	1979
0 - 4	70	74	74	62	67	59	63	64	68
5 - 9	47	55	55	56	48	56	49	46	50
10 - 14	41	37	40	34	41	41	42	35	33
15 - 19	80	70	77	98	81	86	87	81	75
20 - 24	103	130	127	137	141	120	139	143	140
30 - 34	113	102	151	141	177	156	170	148	177
40 - 44	104	93	163	145	165	146	174	148	137
50 - 54	87	97	74	114	102	92	137	100	91
60 - 64	67	78	111	83	110	110	124	117	

Table 16

MUSCULAR DYSTROPHY CLIENTS 1980

TYPE OF MUSCLE DISEASE	No.	New Patients 1980	Deaths
Duchenne	32	2	2
Becker	17	1	1
Limb Girdle	11	-	1
F.S.H.	14	-	-
Myotonic Dystrophy	35	3	-
Kugelburg Welander	4	-	-
Werdnig Hoffman	2	-	-
Friedreichs ataxia	5	3	-
Von Recklinghausens	1	-	-
Peroneal Muscular Atrophy	1	-	-
Distal Muscular Atrophy	1	-	-
Congenital Myotonic Dystrophy	1	-	-
Spinocerebellar Degeneration	4	-	-

Table 17

WORK PERFORMED BY FLIGHT SISTERS 1980
RFDS W.A. SECTION ONLY

Base	Miles flown	No. of Flights	No. of Patients
Pt. Hedland	441,552	528	1,370
Carnarvon	168,293	278	514
Meekatharra	140,942	212	518
Jandakot	544,866	1,073	1,778
Geraldton	109,018	161	363
TOTAL	1,404,671	2,252	4,543

TABLE 18. VIETNAMESE REFUGEE IMMIGRANTS

ARRIVALS 1980

MONTH OF ARRIVAL	NUMBER
JANUARY	123
FEBRUARY	122
MARCH	181
APRIL	105
MAY	95
JUNE	73
JULY	165
AUGUST	56
SEPTEMBER	86
OCTOBER	97
NOVEMBER	145
DECEMBER	109
TOTAL	1357

VIETNAMESE REFUGEE IMMIGRANTS

TABLE 19

RESULTS OF INITIAL SCREENING 1980

DISEASE/PROBLEM	NUMBER DETECTED	PERCENTAGE
DENTAL CARIES	394	29.03
PEDICULOSIS	292	21.52
SCABIES	197	14.52
TRACHOMA	166	12.23
TINEA	75	5.53
THALASSAEMIA TRAIT	66	4.86
TUBERCULOSIS	42	3.10
SYPHILIS	3	0.22
PREVIOUS TREPONEMA INFECTION	38	2.80
OTITIS MEDIA	20	1.47
HYPERTENSION	16	1.18
ANAEMIA	8	0.59
POOR VISION	21	1.55
HANSEN'S DISEASE	2	0.15
G. LAMBLIA	80	5.90
T. TRICHIURA	47	3.46
ASCARIASIS	10	0.74
STRONGYLOIDIASIS	10	0.74
CLONORCHIASIS	1	0.07
S. TYPHI	4	0.29
OTHER SALMONELLA	26	1.92
SHIGELLA SPP.	10	0.74
HOOKWORM	16	1.18
TOTAL IMMIGRANTS	1,357	100.00

SCHOOL HEALTH SECTION

STAFF ESTABLISHMENT AT 31/12/1980

Medical Officers:		
	Resignations	1
	Replacements	1
	TOTAL ESTABLISHMENT	11
	(9 full-time	
	2 part-time)	
Nurses:		
	Resignations	15
	Replacements	15
	Staff increase	1
	TOTAL	128
Nursing Aides:		4
Audiologist:		1
Social Workers:		1
Speech Therapists:		6
Physiotherapists:		
	Full-time	3
	Half-time	2
Occupational Therapists:	Full-time	4
TOTAL STAFF ESTABLISHMENT:		160

TABLE 1
NUMBER OF SCHOOLS VISITED 1980

	METROPOLITAN	COUNTRY	TOTAL
GOVERNMENT SCHOOLS			
Primary and Pre-Primary	260	264	524
Secondary	51	26	77
District High	-	53	53
Special Schools	17	10	27
NON GOVERNMENT SCHOOLS			
Primary and Pre-Primary	77	44	121
Secondary	26	9	35
Primary and Secondary	27	14	41

TABLE 2
ENROLMENTS FOR 1980

GOVERNMENT SCHOOLS		NON-GOVERNMENT SCHOOLS	
Pre-Primary	23,864	Pre-Primary	1,768
Primary	140,123	Primary	25,855
Secondary	64,933	Secondary	20,740
Special Schools	1,578		
	<hr/>		<hr/>
	230,498		48,363
	<hr/>		<hr/>
TOTAL NUMBERS GOVERNMENT AND NON-GOVERNMENT SCHOOLS		278,861	

STAFF

In May 1980 the branch saw the retirement of Dr. K. Bily after 24 years with the child and school health sections. Dr. H. Scott joined the staff and is working from the Armadale Community and Child Health Services Centre.

Dr. B. Khaw joined the Mt. Lawley team in 3rd term in Dr. Sharp's temporary absence.

In July the branch welcomed Miss Sharon Weeks to the new position of senior audiologist.

At the beginning of the year Sr. D. Watkin was appointed to the school health section as nurse educator.

During the year, 15 nurses joined the section for various positions in country and metropolitan areas and participated in an orientation programme held at the start of each term, prior to taking up their district or high school positions.

These staff members replaced 15 nurses who resigned during the year.

With the appointment of an additional speech therapist in 1st term each of the two special schools for physically handicapped children had a full-time speech clinician on their staff. (In 1979 the expertise of one speech therapist was shared between the two schools.)

PROGRAMMES

HIGH SCHOOL PROGRAMME

The number of high schools with a nurse permanently based on the staff in 1980 was 61.

40 of these are in the metropolitan area and 21 in country high schools.

Students made 147,790 visits to consult the school nurse in her medical centre during the year. The numbers of consultations showing a slight increase of 144 on the previous year, although their distribution by geographical area was different from attendances in 1979. There was a 5.2% decrease in attendance at metropolitan high school medical centres compared with an increase of 19.7% for country high schools.

PRIORITY SCHOOLS PROGRAMME

This programme showed no change in numbers of staff members or in the schools which are designated as priority schools by the Education Department.

The following schools were included:

Hamilton Senior High School	}	each with two nurses
South Fremantle Senior High School		
Balga Senior High School	}	each with one nurse
East Fremantle Primary School		
Highgate Primary School		
Lockridge Primary School		
Midland Primary School		
Roebourne Primary School		

SPECIAL SCHOOLS FOR PHYSICALLY HANDICAPPED CHILDREN

The numbers of children enrolled at both Willetton and Koondoola Special Schools continued to increase in 1980. At the end of the year there were 77 children attending the Willetton Special School (showing an increase of 9 on December 1979) and at Koondoola Special School 71 children. This showed a total increase of 4 on 1979 although was not an indication of the number of new children to benefit from the school's programmes as 22 children were transferred to other schools during 1980.

During the year new children were assessed and individual programmes were drawn up for each child by both the medical and educational staff. In addition regular medical reviews and case conferences were held.

Children and staff continued to benefit from the regular visits of both an orthopaedic specialist and of the physiotherapy co-ordinator from the Spinal Deformities Clinic at Princess Margaret Hospital.

A series of holiday programmes were arranged at the school for enrolled children in addition to the many extra curricular activities after school hours during each term. Therapy programmes were available for the children during the holidays and parents were invited to bring their children into school for these sessions.

SCREENING AND ASSESSMENT PROGRAMMES

1980 again confirmed trends of recent years that most full health appraisals are done for pre-primary children. More than half of the total full health appraisals performed were done at this level. Considering Year 1 and pre-primary children only then three times the number of full health appraisals are for the younger age group in both metropolitan and

country schools.

It is particularly pleasing to see this emphasis as this confirms that the policy of trying to identify a child's problems as early as possible is in fact taking place.

All children have a screening assessment for vision and hearing in Year 1 and again in Year 5 and at this later age also a colour-blindness assessment. Vision and hearing tests carried out in intervening years are to follow up children previously identified to have a problem in these areas or to see children referred by both teachers and parents.

The number of home visits made in 1980 showed a slight reduction on 1979. No doubt part of the reason for this was the 23% overall reduction compared with the previous year for the numbers of primary school children with pediculosis who were brought to the attention of our service.

In Perth schools the reduction was almost 30% and for country schools a downturn of 12% for children of primary school age.

NUMBERS OF CHILDREN WITH PEDICULOSIS BROUGHT TO THE ATTENTION OF NURSES AND DOCTORS IN SCHOOL HEALTH SERVICES

	METROPOLITAN PRIMARY SCHOOLS	METROPOLITAN HIGH SCHOOLS	METROPOLITAN TOTALS
1979	7485	308	7793
1980	5263	246	5509
% change	-29.69%	-20.13%	-29.31%

	COUNTRY PRIMARY SCHOOLS	COUNTRY HIGH SCHOOLS	COUNTRY TOTALS
1979	4508	482	4990
1980	3963	352	4315
% change	-12.09%	-26.97%	-13.53%

In the years to follow it is to be hoped that a similar trend will be in evidence. With the concerted efforts of parents, teachers and principals, community groups in general, local government health authorities and staff of Community and Child Health Services the numbers can be reduced even further. It is doubtful if this "nuisance problem" for the community will ever be completely eliminated, but dramatic further reductions can be anticipated.

The parents of 9821 school children were notified regarding updating of immunisations, showing a reduction of 55% on similar notifications in 1979 and this also may have contributed to the reduction in numbers of home visits made.

The numbers of school children with dental caries identified by school health staff continued to show a decrease in the metropolitan area for both primary and secondary aged students.

NUMBERS OF CHILDREN WITH DENTAL CARIES IDENTIFIED BY SCHOOL HEALTH STAFF

	METROPOLITAN PRIMARY SCHOOLS	METROPOLITAN HIGH SCHOOLS	METROPOLITAN TOTALS
1979	977	430	1407
1980	762	400	1162
% change	-22.01%	-6.98%	-17.41%

	COUNTRY PRIMARY SCHOOLS	COUNTRY HIGH SCHOOLS	COUNTRY TOTALS
1979	712	112	824
1980	1033	98	1131
% change	+45.08%	-12.5%	+37.26%

1980 showed an increase in the numbers of primary school children in the country who were brought to the attention of school health staff because of dental caries. On further analysis this increase was due entirely to those children attending pre-primary establishments in the country.

The apparent increase on the 1979 figures for pre-primary school children with dental caries is probably due to the fact that recording of positive findings on school health statistics was introduced for the first time during 1980 for all members of Community and Child Health Services who performed screening assessments in schools.

The numbers of children in Years 1 to 7 identified by school health staff to have dental caries did not increase in the last year, while country children with dental caries attending high schools showed a decrease when compared to 1979.

Refractive errors continue to provide the largest number of conditions which are identified by school health staff. 1719 children in W.A. were found to have refractive errors and the majority of these children were identified at pre-primary, Year 1, Year 5 and Year 8 levels as expected due to total screening of the school population at these ages.

Spectacles were prescribed for 1306 children of whom 352 were in pre-primary or Year 1 age groups. 135 children at these ages were found to have strabismus.

It is pleasing to note that the numbers of children with amblyopia have shown a steady decline in recent years.

<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
108	107	81	64

However in 1980 33 children were identified with amblyopia after the age of 6 years, so this indicates an area upon which to concentrate for earlier diagnosis.

As expected most children found to have trachoma were country children and identification and management programmes need to be co-ordinated in conjunction with community health programmes in the relevant remote areas.

Children at school in remote country areas were also identified to have a higher prevalence of chronic suppurative otitis media than their metropolitan counterparts on a 13.9 to 1 ratio.

CHILDREN AT SCHOOL IDENTIFIED WITH CHRONIC SUPPURATIVE OTITIS MEDIA 1980

	METROPOLITAN		COUNTRY	
	Numbers	%	Numbers	%
Pre-Primary - Year 3	9	5%	171	95%
Year 4 - Year 7	5	4.42%	108	95.58%
Year 8 - Year 12	8	22.86%	27	77.14%
TOTALS	22	6.71%	306	93.29%

Children requiring therapy for speech and language disorders continue to be identified particularly in the early school years.

Of the total of 546 children found to need therapy after referral 394 of these were in pre-primary or Year 1 classes.

SCOLIOSIS SCREENING PROGRAMME

This programme was extended in 1980 to include all girls in Year 6 in addition to the total school population in 1st year of high school. By doing this it is hoped to identify girls with an idiopathic adolescent scoliosis who start their growth spurt, usually two years earlier than boys whilst still at primary school.

The aim of the programme is to identify those students who need intervention i.e. treatment with a brace and to gradually eliminate the need for spinal surgery.

24,097 students were screened for scoliosis between Years 6 and 10. 11 students were fitted with a spinal brace and 1 student required spinal surgery. Many others are under observation at the Scoliosis Clinic or by G.P. or specialist. (See Appendix 3)

HEALTH EDUCATION

There was more than a 15% increase in 1980 in time spent in health education sessions in a group or class situation compared to the previous year.

7665 periods of health education were given in primary schools and high schools compared with 6627 in 1979.

SCHOOL PERIODS TAKEN FOR HEALTH EDUCATION

	1978	1979	1980
Primary Schools	2476	2625	2938
High Schools	3860	4002	4727
TOTALS	6336	6627	7665
% increase on previous year		4.6%	15.7%

Some medical officers and nurses also participated in high schools in the Decibel Danger programme organised by Miss Judy White from CATS.

EAR HEALTH PROGRAMME

An educational programme for staff working in remote areas was drawn up by medical officers of the school health section. This was taken to the Kimberley, Pilbara, Northern and Eastern Goldfields regions in 1st term. There was emphasis on the management of the Aboriginal child with chronic suppurative otitis media and with hearing loss and the programme involved Aboriginal health workers, community health field nurses, school nurses, child health nurses and medical officers.

Clinical follow-up visits have since been made to country areas and communities where there is a high proportion of children with discharging ears.

1980 enabled the section to obtain information about school children in the more remote areas of the State due to a similar recording system being used to that already in use in the metropolitan and South West Country regions. It is envisaged that this trend will continue for 1981 enabling comparison of health problems to be made more readily available for city and country based children. It will highlight marked differences and thus enable health priorities to be defined.

SCHOOL HEALTH SECTION
OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS
 (PRE-PRIMARY AND PRIMARY)

YEAR									
	P	1	2	3	4	5	6	7	TOTAL
NURSES									
REASON FOR CONTACT									
Full Health Appraisals	17893	5796	1164	1062	993	897	707	638	29150
Vision Test	21265	22882	6452	5208	4730	24047	4686	3940	93210
Hearing Test	21259	22756	4190	3738	3639	23899	3048	2544	85073
Other Examination	7535	26543	22246	22284	21212	20860	16204	14254	151138
Scoliosis	17930	6141	1319	1152	1059	1176	9398	1274	39449
Home Visit	822	1548	965	788	826	765	572	406	6692
Emergency	29	83	60	56	75	81	63	69	516
First Aid	230	1769	1659	1869	1468	1289	1518	1262	11064
DOCTORS									
REASON FOR CONTACT									
Full Health Appraisals	134	223	154	188	170	173	153	146	1341
Vision Test	278	201	111	121	124	133	92	95	1155
Hearing Test	307	162	122	116	132	133	104	119	1195
Other Examination	2797	1838	644	423	369	311	292	194	6868
Scoliosis	258	296	191	219	205	207	1003	251	2630
Home Visit	5	3	2	-	-	-	-	1	11
Emergency	2	-	1	-	-	-	-	-	3
First Aid	-	-	-	2	-	-	-	1	3
NURSES									
HEALTH EDUCATION PROGRAMME									
Periods Taken	103	198	118	118	127	190	513	1534	2901
DOCTORS									
HEALTH EDUCATION PROGRAMME									
Periods Taken	1	3	1	1	3	3	4	21	37

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS
(PRE-PRIMARY AND PRIMARY)

	YEAR								
	P	1	2	3	4	5	6	7	TOTAL
NURSES									
REFERRAL AFTER SCREENING									
Vision	322	395	194	177	171	325	179	155	1918
Hearing	269	241	105	80	85	151	65	46	1042
Speech	583	336	116	58	51	44	21	13	1222
Cardiovascular	1267	646	186	116	68	55	24	40	2402
Undescended Testes	290	187	52	29	17	8	2	3	588
Hernia	52	22	2	-	3	1	2	-	82
Orthopaedic	70	39	17	8	2	8	3	-	147
E.N.T.	181	120	62	49	45	48	41	26	572
Scoliosis	290	205	89	62	58	86	1077	145	2012
Strabismus	648	364	83	82	50	29	24	13	1293
Growth Below 3rd Percent	113	102	31	13	11	15	9	10	304
Development	238	169	47	33	15	19	16	9	546
Behaviour Disorder	56	48	26	11	14	18	13	17	203
Other	373	232	114	103	104	124	76	75	1201
DOCTORS									
REFERRAL AFTER SCREENING									
Vision	39	57	23	25	29	27	13	9	222
Hearing	35	40	14	13	21	30	23	16	192
Speech	94	70	20	7	9	13	6	6	225
Cardiovascular	28	19	4	6	7	2	7	-	73
Undescended Testes	20	19	6	3	3	1	-	-	52
Hernia	2	2	-	-	1	1	1	-	7
Orthopaedic	7	9	-	-	2	2	-	-	20
E.N.T.	24	23	14	10	11	14	7	4	107
Scoliosis	18	21	9	8	9	9	128	24	226
Strabismus	36	23	12	13	5	4	5	3	101
Growth Below 3rd Percent	5	13	2	1	-	1	1	2	25
Development	31	23	5	5	3	3	-	3	73
Behaviour Disorder	7	9	3	3	3	4	3	2	34
Other	33	60	31	14	11	9	14	8	180

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS
(PRE-PRIMARY AND PRIMARY)

	YEAR								
	P	1	2	3	4	5	6	7	TOTAL
NURSES									
REFERRED TO									
Family Doctor	487	438	198	183	181	308	185	137	2117
C.C.H.S. Medical Officer	3652	2328	762	551	394	471	1251	288	9697
C.C.H.S. District Office	89	50	39	28	23	30	19	30	308
Child Development Centre	18	7	1	2	1	1	-	1	31
Guidance Branch	36	26	9	3	8	5	8	10	105
Irrabeena	1	4	2	1	1	3	5	3	20
Princess Margaret Hospital	24	46	23	14	16	33	21	16	193
Fremantle Hospital	10	12	7	4	5	11	7	4	60
Other Hospital	35	19	5	1	10	5	1	1	77
Private Specialist	11	15	9	5	6	15	8	6	75
National Acoustic Laboratory	26	15	4	2	6	12	2	5	72
Social Worker	8	3	7	2	4	-	3	2	29
Other	65	43	28	24	15	25	21	15	236
Other Than Assessments	130	198	98	129	130	138	125	98	1046
DOCTORS									
REFERRED TO									
Family Doctor	147	137	64	40	43	28	132	40	631
C.C.H.S. Medical Officer	1	1	1	1	-	-	1	-	5
C.C.H.S. District Office	7	14	2	6	4	3	6	2	44
Child Development Centre	32	14	2	3	2	-	1	2	56
Guidance Branch	6	12	3	1	2	3	2	-	29
Irrabeena	-	-	-	-	-	-	-	-	-
Princess Margaret Hospital	42	65	27	13	15	19	15	8	204
Fremantle Hospital	30	26	15	7	12	10	7	2	109
Other Hospital	58	64	15	8	11	29	12	8	205
Private Specialist	13	15	3	12	7	5	7	5	67
National Acoustic Laboratory	6	5	1	-	5	2	-	-	19
Social Worker	3	2	-	-	-	1	2	-	8
Other	19	14	16	12	8	16	6	9	100
Other Than Assessments	2	-	2	1	4	3	1	1	14

SCHOOL HEALTH SECTION
 OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS
 (PRE-PRIMARY AND PRIMARY)

	YEAR								
	P	1	2	3	4	5	6	7	TOTAL
<u>NURSES AND DOCTORS</u>									
<u>POSITIVE FINDINGS</u>									
Pediculosis	370	1549	1567	1414	1417	1232	990	687	9226
Scabies	6	42	44	44	27	26	25	16	230
Impetigo	45	123	77	86	49	31	40	11	462
Ringworm	40	58	41	42	33	30	20	17	281
Dental Caries	943	449	91	62	55	134	32	29	1795
Colour Vision Defect	4	20	6	7	6	576	32	22	673
Notified For Immunisation	1400	2213	205	144	128	323	356	527	5296

SCHOOL HEALTH SECTION
OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS
(SECONDARY)

	YEAR												TOTAL	M & F
	8		9		10		11		12		TOTAL			
	M	F	M	F	M	F	M	F	M	F				
<u>NURSES</u> <u>REASON FOR CONTACT</u>														
Vision Test	11511	10924	1198	1264	846	874	265	346	108	127	13928	13535	27463	
Hearing Test	1212	1078	303	297	210	185	61	107	29	34	1815	1701	3516	
Other Examination	2340	2142	1911	1965	1065	1172	230	597	191	239	5737	6115	11852	
Scoliosis	8345	8381	862	929	304	327	69	81	25	31	9605	9749	19354	
Home Visit	674	686	483	614	359	533	90	183	40	80	1646	2096	3742	
Emergency	408	253	345	229	357	212	90	70	41	33	1241	797	2038	
First Aid	-	-	-	-	-	-	-	-	-	-	-	-	-	
Medical Centre Visits	18615	25092	18907	29471	14756	23697	3608	9071	1600	2973	57486	90304	147790	
<u>DOCTORS</u> <u>REASON FOR CONTACT</u>														
Vision Test	8	5	7	8	9	6	-	1	-	-	24	20	44	
Hearing Test	7	16	11	4	-	3	-	-	-	-	18	23	41	
Other Examination	76	69	53	38	33	37	8	6	11	13	181	163	344	
Scoliosis	1383	1720	209	257	76	108	13	17	12	15	1693	2117	3810	
Home Visit	-	-	-	-	-	-	-	-	-	-	-	-	-	
Emergency	-	-	-	-	-	-	-	-	-	-	-	-	-	
First Aid	-	-	-	-	-	-	-	-	-	-	-	-	-	
Medical Centre Visits	-	-	-	-	-	-	-	-	-	-	-	-	-	
<u>NURSES</u> <u>HEALTH EDUCATION PROGRAMME</u>														
Periods Taken	1410		875		1318		834		178		4615		4615	
<u>DOCTORS</u> <u>HEALTH EDUCATION PROGRAMME</u>														
Periods Taken	17		20		35		-		40		112		112	

SCHOOL HEALTH SECTION
OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS
(SECONDARY)

	YEAR												TOTAL	TOTAL	M & F	
	8		9		10		11		12		M	F				
	M	F	M	F	M	F	M	F								
NURSES																
REFERRAL AFTER SCREENING																
Vision	144	185	49	81	33	52	6	24	5	13	237	355	592			
Hearing	17	21	6	9	2	9	-	2	-	-	25	41	66			
Speech	7	1	2	1	-	-	-	-	-	-	9	2	11			
Cardiovascular	-	1	2	1	1	-	-	-	-	-	3	2	5			
Hernia	1	2	-	-	-	1	-	-	-	-	1	3	4			
Orthopaedic	2	2	4	4	1	2	-	1	1	-	8	9	17			
E.N.T.	6	7	4	6	5	3	1	3	-	-	16	19	35			
Scoliosis	936	1378	207	257	60	81	15	19	3	6	1221	1741	2962			
Strabismus	2	6	-	3	-	1	-	-	-	-	2	10	12			
Growth Below 3rd Percent	6	3	2	-	3	-	-	-	-	-	11	3	14			
Development	3	-	1	-	-	-	1	-	-	-	5	-	5			
Behaviour Disorder	23	19	16	15	8	6	1	2	1	-	49	42	91			
Other	33	21	33	27	5	19	5	7	5	3	81	77	158			
DOCTORS																
REFERRAL AFTER SCREENING																
Vision	7	7	3	11	3	3	1	1	-	1	14	23	37			
Hearing	2	5	4	2	-	4	-	-	-	-	6	11	17			
Speech	-	-	-	-	1	-	-	-	-	-	1	-	1			
Cardiovascular	2	1	2	1	1	-	-	-	-	-	5	2	7			
Hernia	-	-	1	-	-	-	-	-	-	-	1	-	1			
Orthopaedic	-	-	-	1	-	1	-	-	-	-	-	2	2			
E.N.T.	4	3	2	3	1	2	-	2	-	-	7	10	17			
Scoliosis	118	207	14	49	8	17	3	2	1	-	144	275	419			
Strabismus	1	1	-	-	-	1	-	-	-	-	1	2	3			
Growth Below 3rd Percent	1	1	1	-	-	-	-	-	-	-	2	1	3			
Development	-	-	-	-	-	-	-	-	-	-	-	-	-			
Behaviour Disorder	2	-	1	-	-	-	-	-	-	-	4	-	4			
Other	6	6	2	3	2	2	1	2	-	1	11	14	25			

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS

(SECONDARY)

	YEAR												TOTAL	M & F								
	8				9				10						11				12			
	M		F		M		F		M		F				M		F		M		F	
NURSES																						
REFERRED TO																						
Family Doctor	132	180		79	32	51	4	25	2	8	219	343	562									
C.C.H.S. Medical Officer	974	1381		287	71	105	19	23	6	10	1311	1806	3117									
C.C.H.S. District Office	54	31		6	5			4		3	68	44	112									
Child Development Centre	-	-		-	-	1	-	-	-	-	-	1	1									
Guidance Branch	12	11		9	2		1	1	-	-	2	21	41									
Irrabeena	-	-		1	-	1	1	-	3	-	4	2	6									
Princess Margaret Hospital	5	8		-	-	-	-	-	-	-	5	8	13									
Fremantle Hospital	4	5		5	-	3	1	-	-	-	6	13	19									
Other Hospital	9	8		4	4	2	-	-	1	1	17	15	32									
Private Specialist	5	8		1	2	2	1	-	-	1	13	12	25									
National Acoustic Laboratory	2	1		-	-	-	-	-	-	-	2	1	3									
Social Worker	15	18		1	-	2	-	-	1	-	17	21	38									
Other	5	6		10	4	5	1	5	1	-	20	26	46									
Other Than Assessments	661	620		639	529	606	158	256	90	106	2060	2227	4287									
DOCTORS																						
REFERRED TO																						
Family Doctor	97	162		35	8	19	3	5	1	-	126	221	347									
C.C.H.S. Medical Officer	-	-		-	-	-	-	-	-	-	-	-	-									
C.C.H.S. District Office	1	-		-	1	-	-	-	-	-	2	-	2									
Child Development Centre	1	-		-	-	-	-	-	-	-	1	-	1									
Guidance Branch	1	-		-	-	-	-	-	-	-	1	-	1									
Irrabeena	-	-		-	-	-	-	-	-	-	-	-	-									
Princess Margaret Hospital	2	2		-	-	-	-	1	-	-	2	3	5									
Fremantle Hospital	7	9		9	2	4	1	-	-	2	11	24	35									
Other Hospital	13	31		13	4	4	1	1	-	-	27	49	76									
Private Specialist	4	2		3	2	-	-	-	-	-	7	5	12									
National Acoustic Laboratory	-	-		-	-	1	-	-	-	-	-	1	1									
Social Worker	-	-		-	-	-	-	-	-	-	-	-	-									
Other	3	1		1	-	-	-	-	-	-	6	2	8									
Other Than Assessments	-	1		-	-	-	-	-	-	-	-	-	-									

SCHOOL HEALTH SECTION

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY SCHOOLS

(SECONDARY)

NURSES AND DOCTORS POSITIVE FINDINGS	YEAR												TOTAL		TOTAL	M & F
	8		9		10		11		12							
	M	F	M	F	M	F	M	F	M	F						
Pediculosis	316		163		71		9		39		598	598				
Scabies	16		18		10		4		-		48	48				
Impetigo	40		25		21		1		-		87	87				
Ringworm	62		63		42		4		3		174	174				
Dental Caries	177		142		145		26		8		498	498				
Colour Vision Defect	134		3		9		4		-		150	150				
Notified For Immunisation	1661		1562		938		222		142		4525	4525				

OUTCOME OF SCOLIOSIS SCREENING

METROPOLITAN ONLY

	YEAR										TOTAL
	* 6	* 7	8		9		10				
			M	F	M	F	M	F			
Students Screened by Nurses	7519	1016	6897	6873	633	728	203	228	24097		
Students Screened by Medical Officer	858	123	1323	1638	178	226	49	81	4476		
Students Referred to G.P., Specialist or Scoliosis Clinic	112	16	111	199	10	43	7	15	513		
Students on School Review	247	91	194	562	51	162	19	31	1357		
Students on Review by G.P., Specialist or Scoliosis Clinic	35	7	50	107	3	25	5	15	247		
Limb Length Inequality	6	-	8	10	-	1	-	1	26		
Postural Scoliosis	14	1	27	37	-	-	-	-	79		
Treated with Brace	2	1	-	5	-	2	1	-	11		
Treated Surgically	-	-	-	1	-	-	-	-	1		

* Scoliosis screening at Year 6 is for girls only, but included in the Year 6 and 7 figures will be a small proportion of boys also.

SCHOOL HEALTH SECTION
ANNUAL DIAGNOSIS AND ASSESSMENTS
METROPOLITAN

	YEAR												TOTAL	
	P	1	2	3	4	5	6	7	8	9	10	11		12
OPHTHALMOLOGISTS														
Refractive Errors	170	183	99	90	83	165	94	73	194	79	43	17	8	1298
Infections	6	5	3	1	7	3	2	1	12	6	1	-	-	47
Trachoma	1	1	-	-	-	1	-	-	-	-	-	-	-	3
Strabismus	42	43	22	16	12	9	-	3	4	2	2	-	-	155
Foreign Bodies	1	-	1	1	-	-	-	-	2	-	-	-	-	5
Congenital Nystagmus	-	1	-	-	1	-	-	-	-	1	1	-	-	4
Retinal Scarring	-	-	1	-	-	1	-	-	1	1	1	-	-	5
Congenital Ptosis	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Post Meningitis Impairment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amblyopia	2	9	2	1	-	7	2	3	6	-	1	-	-	33
Normal Vision	45	25	18	27	18	26	17	11	18	5	5	4	2	221
Results Pending	47	43	27	16	27	39	21	13	48	23	13	3	2	322
Other	14	7	6	4	9	15	6	6	15	8	9	1	1	101
Spectacles Prescribed	113	147	75	65	61	117	80	58	145	59	34	15	7	976
Surgery	3	2	2	1	1	-	-	2	1	1	1	-	-	14
HEARING														
Sensorineural Deafness	18	17	5	3	5	9	5	3	4	-	1	1	-	71
Secretory Otitis Media	26	18	13	9	3	10	7	1	3	2	2	-	-	94
Chronic Suppurative Otitis Media	5	2	-	2	2	3	-	-	3	2	3	-	-	22
Perforations (Chronic)	2	1	1	1	-	2	-	-	2	-	-	-	-	13
Foreign Bodies	5	1	1	2	-	2	-	-	-	-	-	-	-	11
Otitis Externa	1	4	-	1	1	1	-	1	1	1	-	-	-	11
Transient Hearing Loss	16	22	8	8	9	12	4	-	-	-	-	-	-	79
Wax (Cerumen)	14	10	-	3	1	5	1	1	-	1	-	-	-	36
Acute Otitis Media	10	1	-	-	1	-	-	-	1	1	-	-	-	14
Normal Hearing	7	3	3	2	6	7	1	5	2	-	1	-	-	37
Results Pending	17	8	5	5	8	6	5	3	2	-	1	-	-	60
Other	5	6	5	1	-	-	1	-	1	-	1	-	-	20
Hearing Aids Supplied	1	-	-	-	1	-	1	-	1	-	-	1	-	5
Surgery	20	15	9	6	4	1	6	-	2	1	-	-	-	64

SCHOOL HEALTH SECTION
ANNUAL DIAGNOSIS AND ASSESSMENTS
METROPOLITAN

	YEAR												TOTAL	
	P	1	2	3	4	5	6	7	8	9	10	11		12
CARDIOVASCULAR SYSTEM														
Congenital Heart Disease	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atrial Septal Defect	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Ventricular Septal Defect	1	-	-	-	-	2	-	-	-	-	-	-	-	3
Aortic Stenosis	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Pulmonary Stenosis	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Patent Ductus Arteriosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coarctation Of The Aorta	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rheumatic Heart Disease	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	10	-	1	1	-	-	3	-	-	1	-	-	-	16
MUSCULOSKELETAL SYSTEM														
Muscular Dystrophies	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scoliosis	5	4	2	2	4	4	38	14	204	28	18	5	-	328
Feet (Pes Planus, etc.)	2	-	-	-	-	-	-	-	-	-	-	-	-	2
Perthes Disease "Irritable Hip" etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genu Valgum	-	3	1	-	-	-	-	-	-	-	-	-	-	4
Fractures and Trauma	-	1	2	2	2	2	5	-	3	9	3	-	-	29
Other	3	2	1	1	-	3	1	-	7	3	1	-	-	22
DISORDERS OF GROWTH & NUTRITION														
Under Nutrition	1	1	-	-	1	-	-	-	-	-	-	-	-	3
Obesity	8	5	7	7	5	6	6	2	5	3	2	-	-	56
Growth Retardation	2	-	-	-	-	-	-	-	3	2	2	-	-	9
Dwarfism	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malabsorption	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Nutritional Anaemia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thyrototoxicosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hypothyroidism	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Other	1	1	-	-	-	-	-	1	-	1	1	-	-	5

SCHOOL HEALTH SECTION
ANNUAL DIAGNOSIS AND ASSESSMENTS

METROPOLITAN

	YEAR												TOTAL	
	P	1	2	3	4	5	6	7	8	9	10	11		12
GENITO-URINARY SYSTEM														
Bilateral Undescended Testes	2	6	-	-	3	-	-	-	-	-	-	-	-	11
Unilateral Undescended Testes	10	8	5	1	2	-	-	-	-	-	-	-	-	26
Hydrocoele	11	4	3	1	-	-	-	-	-	-	-	-	-	19
Inguinal Hernia	7	1	-	-	-	-	-	-	1	-	-	-	-	9
Enuresis	4	7	4	2	5	2	1	1	1	1	-	-	-	28
Other	6	-	1	1	-	-	-	-	1	3	-	-	-	12
CENTRAL NERVOUS SYSTEM														
Cerebral Palsy	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Congenital Tremor	1	1	-	-	-	-	-	-	-	-	-	-	-	2
"Clumsy Child" Syndrome	6	5	2	1	4	1	-	-	-	-	-	-	-	19
Epilepsy	1	1	-	-	3	-	-	-	-	-	-	-	-	5
Migraine & Recurrent Headache	-	-	-	-	-	1	1	-	-	2	1	-	1	6
Cerebral Neoplasm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Congenital Hypotonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cranioostenosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	4	6	6	1	-	-	1	-	-	1	-	1	-	20
PSYCHOSOCIAL & DEVELOPMENT DISORDERS														
Speech Disorder (Req. Therapy)	154	84	17	11	12	12	6	5	2	1	4	1	-	309
Developmental Delay	30	5	2	3	1	-	1	-	-	-	-	-	-	42
Behaviour Problems (Referral Other Agencies)	4	6	6	-	3	2	3	1	12	4	3	-	-	44
Behaviour Problems (Managed Within The Service)	9	5	4	-	2	3	2	2	4	10	17	2	-	60
Learning Difficulties	3	6	7	3	1	2	1	1	1	-	-	-	-	25
Mental Retardation	2	1	-	-	1	-	-	-	-	-	-	-	-	4
Encopresis	-	2	1	-	-	-	1	-	-	-	-	-	-	4
Other	5	3	-	-	1	-	-	1	1	-	-	-	-	11

ANNUAL DIAGNOSIS AND ASSESSMENTS

COUNTRY

	YEAR													TOTAL	
	P	1	2	3	4	5	6	7	8	9	10	11	12		
OPHTHALMOLOGISTS															
Refractive Errors	47	73	32	24	30	53	41	33	54	17	14	2	1	421	
Infections	8	3	3	3	2	1	-	-	1	-	-	-	-	21	
Trachoma	73	93	58	67	73	54	46	57	18	11	9	2	2	563	
Strabismus	24	26	6	4	3	5	3	1	2	1	-	-	-	75	
Foreign Bodies	2	-	-	-	-	-	-	-	-	-	-	-	-	2	
Congenital Nystagmus	1	-	2	1	-	2	-	1	-	1	-	-	-	8	
Retinal Scarring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Congenital Ptosis	4	-	-	-	1	-	-	-	-	-	-	-	-	-	
Post Meningitis Impairment	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
Amblyopia	13	7	-	2	2	3	1	1	1	1	-	-	-	5	
Normal Vision	21	16	12	5	6	8	5	-	7	1	-	-	-	31	
Results Pending	35	29	15	9	13	14	9	6	13	6	3	3	-	87	
Other	3	5	4	4	5	3	4	2	2	-	2	1	-	159	
Spectacles Prescribed	47	55	20	19	20	36	31	26	46	15	13	1	1	330	
Surgery	3	-	-	1	1	4	-	1	2	-	-	-	-	12	
HEARING															
Sensorineural Deafness	8	2	6	2	1	12	6	2	3	-	1	-	-	43	
Secretory Otitis Media	17	38	15	9	14	7	4	1	21	1	-	-	-	127	
Chronic Suppurative Otitis Media	67	36	39	29	26	37	27	18	13	10	3	1	-	306	
Perforations (Chronic)	22	18	13	18	9	14	6	10	3	1	1	-	-	115	
Foreign Bodies	11	6	5	9	1	2	1	3	-	-	-	-	-	38	
Otitis Externa	23	3	2	1	2	5	-	1	-	-	3	-	-	40	
Transient Hearing Loss	32	20	14	16	11	8	5	6	7	3	-	-	-	122	
Wax (Cerumen)	5	12	6	6	3	9	1	2	2	-	-	-	-	46	
Acute Otitis Media	18	15	6	1	2	3	-	1	8	-	11	1	-	66	
Normal Hearing	5	4	1	4	-	4	1	1	-	1	-	-	-	21	
Results Pending	11	11	6	5	5	9	5	1	6	1	1	-	-	61	
Other	3	5	4	1	1	4	2	-	1	2	-	-	-	22	
Hearing Aids Supplied	1	-	-	-	-	3	1	-	1	-	1	-	-	8	
Surgery	15	15	8	5	2	1	1	-	4	-	-	-	-	51	

SCHOOL HEALTH SECTION
ANNUAL DIAGNOSIS AND ASSESSMENTS

COUNTRY

	YEAR												TOTAL	
	P	1	2	3	4	5	6	7	8	9	10	11		12
CARDIOVASCULAR SYSTEM														
Congenital Heart Disease	2	1	1	-	-	-	-	-	-	-	-	-	-	4
Atrial Septal Defect	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ventricular Septal Defect	3	-	1	1	-	-	-	-	-	-	-	-	-	5
Aortic Stenosis	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Pulmonary Stenosis	-	1	-	1	-	-	-	-	-	-	-	-	-	2
Patent Ductus Arteriosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coarctation Of The Aorta	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Rheumatic Heart Disease	-	1	-	2	1	1	-	1	-	1	1	-	-	8
Other	21	16	4	2	4	2	-	-	-	-	-	-	-	49
MUSCULOSKELETAL SYSTEM														
Muscular Dystrophies	1	-	1	-	-	-	-	-	-	-	-	-	-	2
Scoliosis	3	6	2	5	2	3	27	8	23	12	-	-	-	91
Feet (Pes Planus etc.)	1	-	1	-	-	1	-	-	-	-	-	-	-	3
Perthes Disease "Irritable Hip" etc.	-	2	1	-	-	-	-	1	2	-	-	-	-	6
Genu Valgum	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Fractures and Trauma	-	4	3	1	1	2	1	3	10	11	10	2	-	48
Other	4	3	2	1	1	1	4	-	4	2	-	1	-	23
DISORDERS OF GROWTH & NUTRITION														
Under Nutrition	20	7	2	1	1	-	-	-	1	-	-	-	-	32
Obesity	12	2	7	6	5	8	4	5	6	1	3	1	-	60
Growth Retardation	2	1	-	2	1	-	1	-	-	-	-	-	-	7
Dwarfism	-	1	-	1	-	-	-	-	-	-	-	-	-	2
Malabsorption	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Nutritional Anaemia	3	-	2	-	1	-	-	-	-	-	-	-	-	6
Thyrototoxicosis	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Hypothyroidism	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	3	-	1	-	1	-	-	1	1	-	-	-	-	7

SCHOOL HEALTH SECTION
ANNUAL DIAGNOSIS AND ASSESSMENTS

COUNTRY

	YEAR												TOTAL	
	P	1	2	3	4	5	6	7	8	9	10	11		12
GENITO-URINARY SYSTEM														
Bilateral Undescended Testes	2	1	2	1	-	-	-	-	-	-	-	-	-	6
Unilateral Undescended Testes	11	15	3	-	1	1	-	-	-	-	-	-	-	31
Hydrocoele	5	3	-	1	-	1	-	-	-	-	-	-	-	10
Inguinal Hernia	3	1	-	-	-	-	-	-	-	-	-	-	-	4
Enuresis	3	5	1	2	-	-	1	-	2	-	-	-	-	14
Other	5	-	-	-	1	3	-	-	-	-	1	-	-	10
CENTRAL NERVOUS SYSTEM														
Cerebral Palsy	5	-	1	-	-	-	-	-	-	-	-	-	-	6
Congenital Tremor	-	-	-	-	-	-	-	-	-	-	-	-	-	-
"Clumsy Child" Syndrome	3	1	-	3	-	-	-	-	-	-	1	-	-	8
Epilepsy	-	1	1	1	-	-	-	-	-	-	-	-	-	3
Migraine & Recurrent Headache	-	-	2	-	-	1	2	1	2	-	2	2	-	12
Cerebral Neoplasm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Congenital Hypotonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Craniostenosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	6	4	4	7	5	4	2	1	-	-	-	-	33
PSYCHOSOCIAL & DEVELOPMENT DISORDERS														
Speech Disorders (Req. Therapy)	109	47	22	11	15	17	4	6	4	2	-	-	-	237
Developmental Delay	24	8	2	1	2	1	-	-	1	-	-	-	-	39
Behaviour Problems (Referral)	4	6	5	2	2	2	3	3	-	1	-	-	-	24
Other Agencies)														
Behaviour Problems (Managed Within The Service)	6	3	-	-	1	-	1	-	2	1	2	-	-	16
Learning Difficulties	2	5	4	4	2	2	-	3	1	-	-	-	-	23
Mental Retardation	3	-	2	-	2	1	-	1	1	-	-	-	-	10
Encopresis	1	3	1	-	1	-	-	-	-	-	-	-	-	6
Other	2	1	-	-	-	-	-	-	-	-	-	-	-	3

APPENDIX 6

CLASSIFICATION OF CONFIRMED DISABILITIES AND HANDICAPS UNDER SYSTEMS 1980

OPHTHALMOLOGISTS' ASSESSMENTS

Refractive Errors	1719
Infections	68
Trachoma	566
Strabismus	230
Foreign Bodies	7
Congenital Nystagmus	12
Retinal Scarring	5
Amblyopia	64
Other	143
TOTAL POSITIVE FINDINGS	2814
Spectacles Prescribed	1306
Surgery	26
Normal Vision	308

HEARING ASSESSMENT

Sensorineural Deafness	114
Secretory Otitis Media	221
Chronic Suppurative Otitis Media	328
Perforations (Chronic)	128
Foreign Bodies	49
Otitis Externa	51
Transient Hearing Loss	201
Wax (Cerumen)	82
Acute Otitis Media	80
Other	42
TOTAL POSITIVE FINDINGS	1296
Hearing Aids Supplied	13
Surgery	115
Normal Hearing	58

CARDIOVASCULAR SYSTEM

Congenital Heart Disease	4
Atrial Septal Defect	1
Ventricular Septal Defect	8
Aortic Stenosis	2
Pulmonary Stenosis	3
Patent Ductus Arteriosus	-
Coarctation of the Aorta	1
Rheumatic Heart Disease	8
Other	65
TOTAL POSITIVE FINDINGS	92

MUSCULOSKELETAL SYSTEM

Muscular Dystrophies	2
Scoliosis	419
Feet	5
Perthes Disease, "Irritable Hip", etc.	6
Genu Valgum	5
Fractures and Trauma	77
Other	45

TOTAL POSITIVE FINDINGS 559

DISORDERS OF GROWTH AND NUTRITION

Under Nutrition	35
Obesity	116
Growth Retardation	18
Malabsorption	2
Nutritional Anemia	6
Thyrotoxicosis	1
Hypothyroidism	1
Other	12

TOTAL POSITIVE FINDINGS 191

GENITO-URINARY SYSTEM

Bilateral Undescended Testes	17
Unilateral Undescended Testes	57
Hydrocoele	29
Inguinal Hernia	13
Enuresis	42
Other	22

TOTAL POSITIVE FINDINGS 180

CENTRAL NERVOUS SYSTEM

Cerebral Palsy	7
Congenital Tremor	2
"Clumsy Child" Syndrome	27
Epilepsy	8
Migraine and Recurrent Headache	18
Cerebral Neoplasm	-
Other	53

TOTAL POSITIVE FINDINGS 115

PSYCHOSOCIAL AND DEVELOPMENTAL DISORDERS

Speech Disorders (Requiring Therapy)	546
Developmental Delay	81
Behaviour Problems (Referral Other Agencies)	72
Behaviour Problems (Managed Within The Service)	76
Learning Difficulties	48
Mental Retardation	14

PSYCHOSOCIAL AND DEVELOPMENTAL DISORDERS (Cont'd.)

Encopresis	10
Other	14
TOTAL POSITIVE FINDINGS	861
TOTAL NUMBER OF DISABILITIES AND HANDICAPS	6108

RESEARCH PROJECTS UNDERTAKEN IN COLLABORATION WITH THE NH&MRC RESEARCH
UNIT IN EPIDEMIOLOGY AND PREVENTIVE MEDICINE

STUDIES OF OBSTETRIC AND NEONATAL MORBIDITY

Administered by the Statistics Branch, Department of Health and Medical
Services.

Collaborators: Community and Child Health Services Branch, Department of
Health and Medical Services; NH & MRC Unit.

The Midwives Notification of Birth Form collects information on perinatal
and neonatal morbidity and certain aspects of obstetric and neonatal
practice. It covers all births (live and still) in Western Australia,
including home births. Data has been analysed from 1975-79 and the first
W.A. Midwives Report produced. Following a study of the validity of data
collected in 1977, a new form has been implemented in 1980 which will
improve the quality of information obtained. A lot of time has been spent
with the midwives in both metropolitan and rural regional hospitals
introducing the new system and explaining the uses of the data. Sr. Joan
Bedford from Community and Child Health Services is providing valuable
assistance with the checking, coding and preparation of these data and in
the continuing education of the midwives.

The midwives data has been used as a sampling frame for:

- i) A follow-up study of newborns classified as at high risk
for morbidity;
- ii) A longitudinal study of growth and nutrition being conducted
by the Gastro-Intestinal Research Unit, Princess Margaret
Hospital.

Midwives forms are the basis of the W.A. Congenital Malformations Register,
and provide maternal and perinatal information for a study of cerebral
palsy cases and controls. They have also been used for an epidemiological
study of sudden infant death syndrome and to evaluate the impact of the
programme for the prevention of haemolytic disease of the newborn.

Many requests for obstetric and perinatal data from outside groups or
individuals are processed by us using the Midwives data: eg. perinatal
mortality by area, numbers of births by hospital and data for planning
hospital and community facilities, etc. A large study comparing the
obstetric characteristics and pregnancy outcomes of aboriginal and
caucasian women is nearly complete. This project is continuing.

THE W.A. CONGENITAL MALFORMATIONS REGISTER

Administered by NH & MRC Unit

Collaborators: Community and Child Health Services and Statistics
Branches, Department of Health and Medical Services.

This register was established to collect accurate data on all congenital
malformations in W.A., from 1980 onwards, and to use such data for
epidemiological studies of causation, provide recurrence risks for genetic
counselling and provide surveillance for environmental teratogens.

Data on children born with a congenital malformation in W.A. on or after January 1, 1980 are being collected from Midwives Notification of Birth forms, death certificates and hospital morbidity records. Voluntary notification is also being sought from private doctors, Community and Child Health Services (well baby clinics), outpatient departments and any agencies assessing and managing children with handicaps. The notification cards are collected, verified and updated using hospital records, information provided by Community and Child Health Services nurses and private doctors' notes. These cards are in use in the metropolitan area only at present, but will be introduced into rural areas in 1981.

Descriptive epidemiological studies of the various major defects, eg. neural tube defects, cleft lip and palate, Down's Syndrome and talipes are planned for 1981/82. Case-control studies of neural tube defects and cleft lip and palate are also planned for next year. Information of the use of pesticides and herbicides is being obtained from the Department of Agriculture as a first step to see if it is feasible to investigate the possible teratogenic effects of these chemicals.

A STUDY OF CHILDREN AT RISK OF MORBIDITY IN THE NEONATAL PERIOD

Aministered by NH & MRC Unit.

Collaborators: Community and Child Health Services Branch, Department of Health and Medical Services.

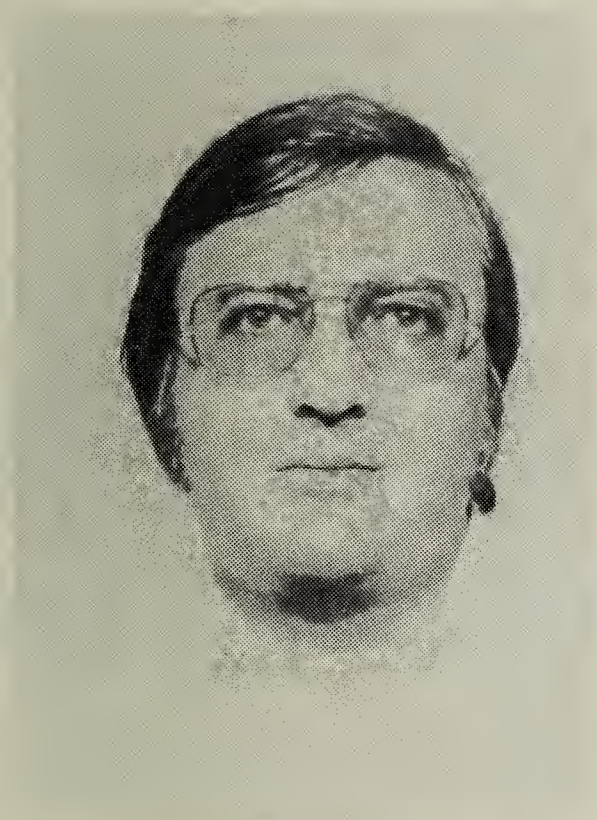
This is a follow-up study of all children born in 1974, 1975 and 1976 in Western Australia who had one or more of the following characteristics:

- 1) weighed less than 2000g at birth
- 2) born before 34 weeks gestation
- 3) were transferred for special care
- 4) took longer than 5 minutes to establish spontaneous respirations
- 5) had an Apgar of less than 4 at 5 minutes
- 6) were admitted to a Neonatal Intensive Care Unit.

About 2000 children born in these years fulfilled these criteria. Information on their present status is being collected from death certificates, the W.A. Cerebral Palsy Register, Princess Margaret Hospital, all agencies dealing with any mental, physical or developmental handicap, including Community and Child Health Services, special schools, National Acoustic Laboratory and Mental Health Services. The school health records of the whole sample and a control for each (the next child in their class list) are being perused and relevant information on their mental and physical status obtained. A stratified sample are being actively traced and invited to present for developmental assessment. The response to this has been excellent. All of the 1974 born sample have had their developmental assessments (80% response from those chosen to participate).

All necessary obstetric and neonatal data have now been obtained and are being coded. Most of the follow-up agencies have been contacted and their records perused. The project is continuing.

KIMBERLEY HEALTH REGION

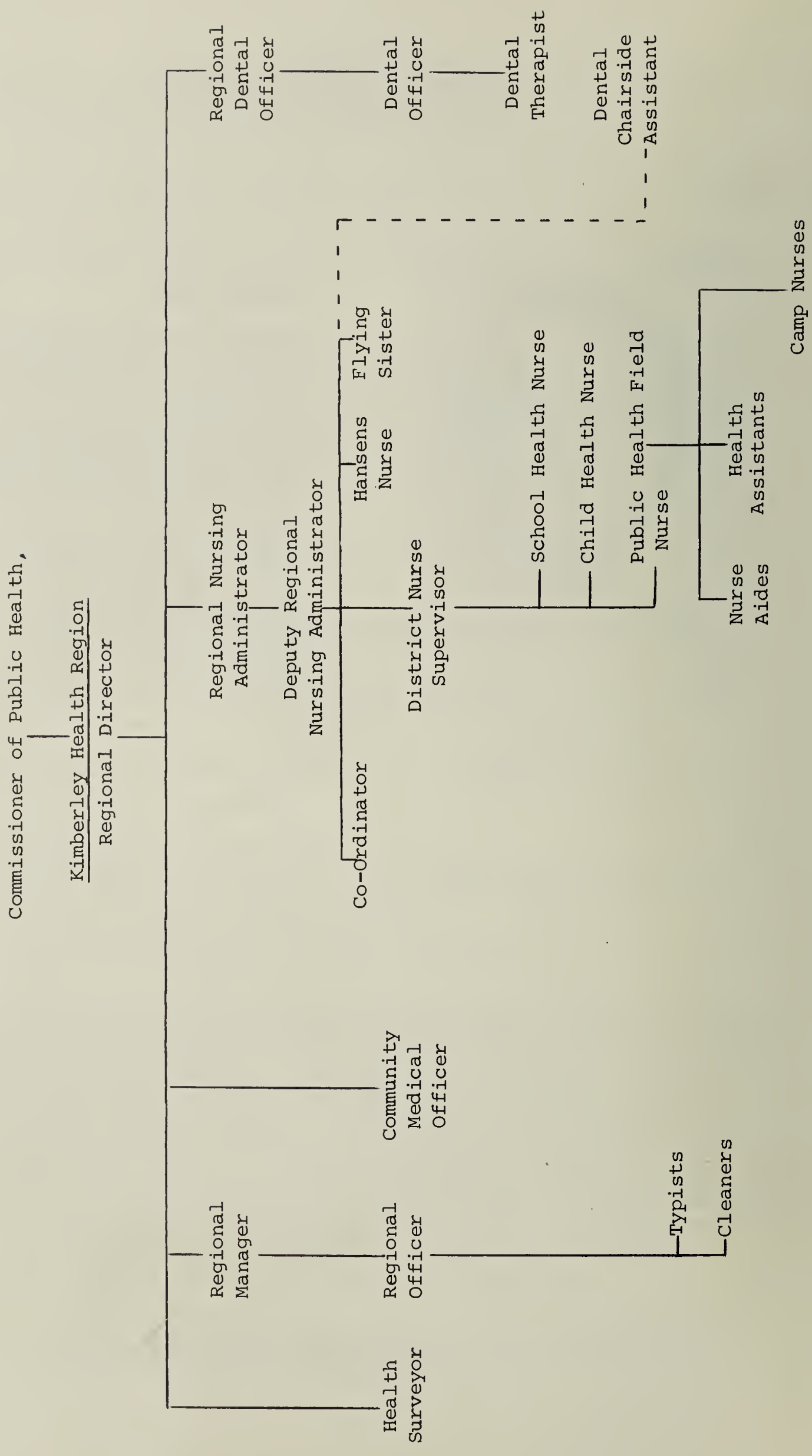


R.M. Spargo,
M.B.B.S., E.C.F.M.G.
Regional Director

SENIOR STAFF

Regional Director, Health: Dr. R.M. Spargo
Regional Nursing Administrator: Mrs. P.M. Humphris
Regional Manager: Mr. J. Altimira
Community Medical Officer, Wyndham/
East Kimberley: Dr. L. Anderson
Community Medical Officer, Hall's
Creek District: Dr. P. Schindler
Community Medical Officer, Fitzroy
Crossing District: Dr. G. Jones
Community Medical Officer, Derby
District: Dr. K. Sesnan
Community Medical Officer, Broome
District: Dr. J. McIlraith

KIMBERLEY HEALTH REGION - ORGANIZATION CHART



KIMBERLEY HEALTH REGION

On 3rd April, 1980, Public Health activities within the Kimberley were regionalised. On that date, a regionally based administration team assumed responsibility for the area except in the realm of overall policy determination.

Activities regionalised included the three sections of Community and Child Health Services (Community Health Services, Child Health Services and School Health Services), Dental Health Services, Health Surveying Branch, Community Health Programme and also Administration.

The functions of other Branches without on-going representation in the Kimberley such as the Chest and Tuberculosis Services, Venereal Disease Control Branch and Occupational Health are being integrated where beneficial into the general control actions and functions within the region.

Other services including the State Health Laboratory Service and the State X-Ray Laboratory have not been included thus far in regionalisation.

The senior staff of the Branches contributed to the implementation of regionalisation and subsequently to the on-going commitment to administrative reorganisation to allow a smooth changeover.

To implement regionalisation, Mr. J. Altimira, Dip.Wk.Stud., MIIE., was appointed Regional Manager on 3rd April, 1980, and Mrs. P. Humphris, Dip.N.Ed., Dip.N.Admin., FCN (NSW)., FCNA., was appointed Regional Nursing Administrator in July, 1980.

The aims of regionalisation have been twofold:-

1. To rationalise and pool resources so as to obtain full benefit from existing and proposed facilities and manpower.
2. To co-ordinate locally the delivery of public health affecting activities so that decisions are relevant to the population they affect.

The Administrative Headquarters of this regionalised Public Health Service is at Derby. This incorporates:-

1. The Regional Executive which plans and implements Public Health goals and objectives within the Kimberley in keeping with overall State goals and maintains accounting and financial budgeting for the various funding sources applicable to the Region.
2. A Nurse Co-ordinator integrates communication with the network of centres, outposts and mobile field nurses scattered over the large landmass that is the Kimberley.
3. A Hansens Disease Control Nurse who maintains the regional register and co-ordinates the ongoing field survey of the total population, being responsible also for treatment and

surveillance of out-patients in conjunction with field based staff.

4. A small Clerical Administrative team based in the Region. Besides primary support services this team is also engaged in the development of systems to meet the needs of a regionalised health service.

To achieve the aims of regionalisation, certain other organisational changes were made. The statistical region that is the Kimberley can be divided into four local authority areas, (Broome, West Kimberley, Hall's Creek and Wyndham/East Kimberley). Public health control actions and functions within each local authority area are the responsibility of a Community Medical Officer (C.M.O.)

Public health activities at the field level are implemented by a nurse based system. Public Health Field Nurses are multipurpose agents who are deployed within the towns, some mobile to the small isolated enclaves, others based in the larger hinterland communities. This Field Nurse integrates the various control actions and functions of the Public Health Division, as necessary, into the general health services delivered. In some situations, this involves a significant therapeutic input.

In the Kimberley, such a provider's expertise increases as she gains intimate knowledge and experience of the particular human ecology in which she works. Her effectiveness is greatly increased and complemented by the involvement of local health assistants to facilitate the coverage of a particular area and population and, at the community level, by community based and peer related agents, the camp nurses.

The Public Health Field Nurse answers to her Community Medical Officer who is responsible, within the overall plan of the State and Region in public health terms, for planning, epidemiological analysis, delivery of service, assessment and feedback.

Operationally, the Public Health Field Nurse answers to a District Nurse Supervisor who provides within the Public Health District the professional supervision, support, advice and assistance required.

At the field level, the Public Health Field Nurse needs to respond horizontally to other Public Health providers, Dentists, Dental Therapists, Child Health and School Health Nurses and Health Inspectors, facilitating and complementing their function and, in some situations, being responsible for the performance of their function. In addition, the very nature of her work requires interaction with a galaxy of workers from other departments and outside Government service. Very often the Field Nurse is the only agent in the field.

The forte of regionalisation of an integrated public health care system is the notion that all health care providers must view themselves as part of the system that responds to the needs of the total community of which they are a part. This should produce carefully considered and thoughtful system approaches to the health needs and demands of the community being served.

TABLE 1
STAFF AS AT 31/12/80

	Establishment	Actual Encumbent
Nursing		
Itinerant Health	42	32
C.H. Programme	5	2
Child Health	3	2
School Health	1 4/5	1 4/5
Aides and Assistants	24	20
Camp Nurses	-	41
Medical Officers	6	5
Clerical	7	7
Dental Officers*	6	4
Dental Therapists	4	4
Dental Chairside Assistants*	10	9
Health Surveyors **	2	2

*2 Dental Officers and Dental Chairside Assistants funded by Itinerant Health.

**In conjunction with Local Health Authorities.

Table 1

This shows the total staff establishment within the Kimberley Region and the shortfall experienced as at 31st December, 1980.

TABLE 2
REGISTERED CLIENTS - ALL RACES KIMBERLEY AS AT DECEMBER 1980

AGE GROUPS	MALE	FEMALE	TOTAL
0-5	1024	963	1987
6-14	1462	1334	2796
15-19	492	498	990
20-49	1840	1776	3616
50-64	548	468	1016
65+	355	293	648
Unknown	80	58	138
TOTAL	5801	5390	11191

TABLE 3
REGISTERED CLIENTS OF ABORIGINAL DESCENT - KIMBERLEY
AS AT DECEMBER 1980

AGE GROUPS	MALE	FEMALE	TOTAL
0-5	929	852	1781
6-14	1327	1160	2487
15-19	481	479	960
20-49	1601	1562	3163
50-64	493	447	940
65+	322	285	607
Unknown	76	57	133
TOTAL	5229	4842	10071

From Table 2 it can be seen the numbers of registered clients by age breakdown as at December, 1980.

Table 3 gives a similar breakdown of the registered Aboriginal descent clients in the Kimberley at the same time. These form 34.4% of the total persons of Aboriginal descent registered with Community and Child Health Services statewide.

From Table 3 it can be shown that 42.3% of the registered client population of persons of Aboriginal descent is under the age of 15 years (a population count in the Shire of West Kimberley on 30th June, 1980, gave the population of Aboriginal descent under the age of 15 years as 37.7%).

TABLE 4
LIVE BIRTHS - NON-ABORIGINAL AND ABORIGINAL DESCENT
KIMBERLEY 1980

NON-ABORIGINAL	ABORIGINAL DESCENT
106	249

TABLE 5
DEATHS - NON-ABORIGINAL AND ABORIGINAL DESCENT
KIMBERLEY 1980

NON-ABORIGINAL	ABORIGINAL DESCENT
32	102

TABLE 6
ABORIGINAL FERTILITY RATES - KIMBERLEY
1973 - 1977

1973	1974	1975	1976	1977
149.7	133.9	125.5	132.6	101.5

FEMALE POPULATION 15-49 YEARS

From Table 6, can be seen a steady decline in fertility rates. In the West Kimberley in 1980, the Aboriginal Fertility Rate was 101.6 (with a female population aged 15-49 of 659 persons). These fertility rates differ from those of the Statewide rates where rural dwelling Aboriginals had the highest rate of 218, followed by 140 for metropolitan Aboriginals; 102 for rural Caucasians and 75 for metropolitan Caucasians although the denominator used here was for women aged 15-44 (see Reference i)).

TABLE 7
ABORIGINAL CRUDE BIRTH RATES - KIMBERLEY
1973 - 1977

1973	1974	1975	1976	1977
30.5	27.9	26.9	29.2	23.0

Again, from Table 7 can be seen a steady decline in the crude birth rate. In the West Kimberley in 1980 the Crude Birth Rate was 22.6 with a total Aboriginal population on 30th June, 1980 of 3,055 persons.

TABLE 8
NUMBER OF CLIENT ENCOUNTERS IN KIMBERLEY
FOR THE PERIOD YEAR ENDING 1980

AGE GROUPS							
0-5	6-14	15-19	20-49	50-64	65+	Unknown	TOTAL
20704	12677	4688	17986	10601	5419	10703	82778

From Table 2 and 3 can be seen that the client population in the Kimberley is predominantly Aboriginal.

Table 8 shows that the number of client encounters (82,778) made during 1980 up from 58,844 or 29 percent for the same period in 1979. This is a considerable under estimation of the real situation as significant numbers of encounters are not yet being collected centrally for the new integrated public health functions of the Kimberley. These include encounters made by:-

- i) School Health Nurses
- ii) Child Health Nurses
- iii) School Medical Examinations
- iv) Community Medical Officer Encounters
- v) Dentists and Dental Therapists clients
- vi) Visiting Specialist consultations and surveys
- vii) Public Health Inspection Encounters

1980 was a year of scarce nursing manpower for a number of reasons. Encumbent establishment was spread too thinly and there is a real danger that unless the shortfall in nursing staff can be made up, output can become superficial and ineffectual.

Flying Sisters

The Victorian Section of Royal Flying Doctor Service facilitates an important contribution to the delivery of health care services to the isolated populations in the Kimberley. This is achieved through:-

- 1. Medical consultations by radio.
- 2. Clinic Flights to hinterland communities.
- 3. Evacuation of the sick and injured.
- 4. Repatriation of hospital patients to their hinterland homes.

The Region's Flying Sisters play an important role in this very efficient service.

The aircraft of the Victorian Section of the Royal Flying Doctor Service work harder than the planes of any other Section in Australia.

In the Kimberley as well as the first line therapeutic role in clinic and evacuation flights, the Flying Sister is a Public Health Nurse responsible for facilitating and implementing public health control actions in remote hinterland communities, complimenting the effort of the itinerant Field Nurse who visits by road. In addition, the Flying Sister is the important link between Public Health Field Nurses (itinerant or outpost based) and the therapeutic facilities at Wyndham and Derby.

TABLE 9

R.F.D.S. (VICTORIAN SECTION)
PATIENT STATISTICS KIMBERLEY 1980

CONSULTATIONS	HINTERLAND TO HOSPITAL TRANSFERS	HOSPITAL TO HINTERLAND COMMUNITY REPATRIATION
6259 (5537)*	1134	589

*() Persons of Aboriginal descent seen on clinics.

From Table 9 can be seen the important contribution of health and medical services by the Victorian Section of the R.F.D.S. to the Aboriginal population of the Kimberley hinterland, where 88% of clinic consultations are with persons of Aboriginal descent.

TABLE 10
ABORIGINAL PERINATAL, NEONATAL, POSTNEONATAL AND INFANT MORTALITY
IN THE KIMBERLEY FOR THE YEARS 1968, 1971, 1974, 1977, 1980.

	1968	1971	1974	1977	1980**
All Births	287	344	307	261	255
Stillbirths	5	11	9	3	6
Live Births	282	333	298	258	249
Deaths					
Number:					
1st Week	10	5	7	6	2
Perinatal	15	16	16	9	8
Neonatal	11	6	7	7	3
Postneonatal	11	21	13	0	5
Infant	22	27	20	7	8
Rates per 1000 Births					
Perinatal (Total births)	52.3	46.5	52.1	34.5	31.3
Neonatal (Live births)	39.0	18.0	23.5	27.1	12.0
Postneonatal (Live births)	39.0	63.1	43.6	0.0	20.1
Infant (Live births)	78.0	81.1	67.1	27.1	32.1

**These infant deaths include all those that died outside the region but had a Kimberley origin.

Table 10 shows the Aboriginal infant mortality breakdown for the Kimberley over the years 1968, 1971, 1974, 1977 and 1980. It is clear that improvement has been achieved in the Region although there is no room for complacency.

TABLE 11
NON-ABORIGINAL AND ABORIGINAL MEAN BIRTHWEIGHTS IN THE KIMBERLEY FOR
THE YEARS 1974, 1977 AND 1980

	1974	1977	1980
Non-Aboriginal	3399	3350	3407
Aboriginal	3105	3100	3135

Sample size 118 Non-Aboriginal babies with a standard deviation of 506 grams and 253 Aboriginal babies where the standard deviation was 585 grams.

From Table 11 it can be seen that in each of the years examined for the Kimberley, the mean birthweights were 250 grams or lower for Aboriginal babies in each year compared with Non-Aboriginal babies. Again this has been noted by F.J. Stanley for the whole State.

TABLE 12
ABORIGINAL BIRTHWEIGHTS, KIMBERLEY, PERCENT BELOW 2500 GRAMS
1974 AND 1980

1974	1980
12.78%	12.05%

From Table 12 for the years 1974 and 1980 in the Kimberley, some 12 percent of babies weighed under 2500 grams. F.J. Stanley found the same percentage in her statewide study. (See reference i)). However, in the Kimberley in 1980, only 4.82% of Aboriginal birthweights exceeded 4000 grams against 10% in the State study.

In the Northern Territory, between 20 and 25 percent of Aboriginal infants (the incidence varies a little in different communities) weigh less than 2500 grams (see reference ii)).

TABLE 13 ABORIGINAL MATERNAL AGE, % DISTRIBUTION, WEST KIMBERLEY 1980									
AGE GROUPS	15-19		20-24		25-29		30-34		35-49
%	(20)	29.4%	(23)	33.8%	(13)	19.1%	(7)	10.3%	(5) 7.4%
POPULATION NUMBERS	154		138		90		77		200

SOURCE: Shire of West Kimberley Population count 30th June, 1980 (Australian Bureau of Statistics).

NOTE: Numbers in brackets represent women.

From Table 13 it is shown that 29.4% of Aboriginal births are to women of 19 years or less. Sixty-three percent of Aboriginal mothers were 24 years or less. This compares closely with F.J. Stanley who found 29% and 70% for these age groups respectively (see reference i)).

TABLE 14
MORTALITY BY AGE AND SEX - KIMBERLEY 1980

AGE CATEGORIES	MALE		FEMALE		TOTAL	
0-	(-)	6	(-)	2	(-)	8
1-4	(1)	1	(-)	1	(1)	2
5-14	(1)	4	(1)	-	(2)	4
15-49	(10)	17	(3)	9	(13)	26
50-64	(3)	6	(2)	11	(5)	17
65+	(9)	19	(2)	26	(11)	45
COLUMN TOTAL	(24)	53	(8)	49	(32)	102

NOTE: Non-Aboriginal mortality in brackets.

Table 14 shows the breakdown of Aboriginal mortality in the Kimberley by age and sex. In 1980, the proportion dying at age 65 and over was 44.12%. This suggests that the Kimberley Aboriginal population continues to adapt to the stresses impacting from transition. This is true except for the age group (15-49) where 34.6 percent of the deaths were due to external causes as is shown in Table 15.

TABLE 15
ABORIGINAL MORTALITY DUE TO EXTERNAL CAUSES

AGE CATEGORY	1968		1971		1974		1977		1980	
0-	1	(22)	1	(27)	-	(20)	-	(7)	-	(8)
1-4	1	(6)	1	(5)	-	(3)	-	(4)	1	(2)
5-14	1	(2)	2	(2)	1	(4)	1	(3)	2	(4)
15-49	-	(5)	2	(13)	7	(19)	6	(16)	9	(26)
50-59	-	(11)	1	(15)	-	(14)	1	(9)	1	(12)
60+	-	(68)	3	(47)	1	(35)	3	(33)	2	(50)
COLUMN TOTAL	3	(114)	10	(109)	9	(95)	11	(72)	15	(102)
PERCENT OF TOTAL DEATHS	2.6		9.2		9.5		15.3		14.7	

NOTE: Total Aboriginal deaths in brackets.

Table 15 shows Aboriginal mortality at three year intervals from 1968 through to 1980 where an external cause, eg. accidents, violence, poisoning and drowning was the cause of death. This table shows the increasing proportion of deaths from such causes and especially in the age group 15-49. The dissonance within the Kimberley Aboriginal population, responsible for transition, has been associated since 1971 with an increase in aggression and an increase in drunkenness. That these are some of the forces responsible for this increase in mortality from external causes is probable. However, it is a problem that is being observed also at the national level in Non-Aboriginal Australians.

TABLE 16
 PROPORTIONAL MORTALITY RATIO (PMR) - AGE 50 AND OVER - KIMBERLEY
 THREE YEAR INTERVALS 1968 THROUGH TO 1980.

1968	1971	1974	1977	1980
69.3	56.9	51.6	58.3	61.4

Table 16 shows the proportional mortality ratio age 50 years and over. In the Kimberley the expectation for Aboriginal longevity is much higher than has been claimed for Aboriginal populations elsewhere.

The results show that the (PMR 50+) for Kimberley Aboriginals continues to be a high figure by world standards. This has been previously reported in 1973 by Professor P. Moodie. (See reference iii)).

TABLE 17
 ABORIGINAL DEATHS BY AGE GROUP AS PERCENTAGE
 OF TOTAL DEATHS FOR 1967-76

AGE GROUP	NUMBERS	PERCENT
0-	218	18.3
1-4	49	4.1
5-14	18	1.5
15-49	163	13.7
50-64	182	15.3
65 & Over	561	47.1
TOTAL DEATHS	1291	100.0%
PMR (50+)		62.38

Table 17 shows the high PMR (50+) at 62.38% when all Aboriginal deaths in the Kimberley over a 10 year period are combined. Over this period, there were 76 stillbirths registered and 3,086 live births. Among these were 25 sets of twins.

TABLE 18

MORTALITY BY AGE DISTRIBUTION - NON-ABORIGINAL AND ABORIGINAL, SHIRE OF WEST KIMBERLEY, 1980.

	ABORIGINAL				NON-ABORIGINAL			
	MALE		FEMALE		MALE		FEMALE	
	Mort.	Pop.	Mort.	Pop.	Mort.	Pop.	Mort.	Pop.
Stillbirths	3		1				1	
0-4	4	212		174		155		151
5-14	2	407		358	1	239	1	248
15-49	5	710	2	659	2	1424		887
50-64	3	183	4	162		241	2	117
65+	10	106	14	84	7	55	1	24
TOTAL	27	1618	21	1437	10	2114	5	1427
MORTALITY/ POPULATION TOTAL				48/3055				15/3541*

*Excludes 223 persons for whom no details of age are available.

Table 18 shows a breakdown of total mortality in the Shire of West Kimberley by age, sex and race. We are also able to show here the 30th June 1980, population for each category.

Trachoma

The prevalence of Trachoma receives considerable attention. As such, it is a useful indicator of those behavioural and environmental forces that impact inimically on any human ecology. It is not a blinding condition with supervised treatment. No Aboriginal child in the Kimberley can expect to be in danger of blindness from trachoma. Treatment is thorough for individual cases. Where the prevalence rate of active follicles in any segment of the population rises, that whole segment is treated.

This disease will not be eradicated in the short-term in those communities in certain geo-climatic situations. Interventions need to be achieved which will eliminate, change or dampen down those forces affecting the incidence of trachoma coming out of the dynamic interaction between Aboriginal behaviour and environment.

The incidence of trachoma is being eroded each year as the reservoir of infection responds to chemotherapy and this inroad will be continued.

Alcohol and Alcohol Related Problems

Excessive alcohol intake is a significant problem for the whole population of the Kimberley. That the Aboriginal population has been so burdened in the short period since Citizenship Rights in 1971, testifies as to its cultural acceptance. Drunkenness is no longer seen as deviant within the Aboriginal society. Worse is the Aboriginal behavioural stereotype evolving so visibly throughout the Kimberley, yet a stereotype developed from examination of that segment of the Aboriginal community enmeshed in the need for social intercourse where being "sparked up" has primacy.

There are large segments of Aboriginal society who are abstinent or who follow a moderate lifestyle. Yet it is patently obvious that this segment of the population cannot escape the consequences of drunkenness. Worse, it is labelled with the stereotype.

Table 15 shows the increased frequency of deaths from external causes since Citizenship Rights. A significant number of these deaths were associated with excessive alcohol intake. There is, in addition, an increasing frequency of morbid categories associated with excessive alcohol intake. Acute psychotic episodes and progressive social and intellectual decline associated with chronic intoxication are being encountered in individuals now. In one such patient, where computerised axial tomography was obtained, marked shrinking of the substance of the brain was noted. This year, there has occurred one death in a young woman reasonably suspected of being associated with alcohol withdrawal.

Alcohol withdrawal syndrome now is being seen in this Aboriginal population.

The diversion of the community income in a poverty group from sustenance needs to meet alcohol demand is widespread and its inimical effect upon the nutritional development of infants, toddlers and children is certain.

Encouragement has been given to the evokement of community based groups who would look to extending support to those who would want to change their lifestyle. One such group is active in Broome and this service has, through a double secondment involving the Alcohol and Drug Authority, supplied two Aboriginal Alcohol Counsellors to work for this group. In the East Kimberley, Mr. T.M. Lamoreaux has been funded by the Voluntary Adult Education Grant Scheme for support of a community alcohol awareness/education project.

Lip service only is being paid to the idea of self-help from within the ranks of the victims so far. This is, in the writer's opinion, for the following main reasons:-

1. There are powerful market forces operant.
2. Alcohol intake is exhilarating, there is considerable pleasure to be obtained from its use. Alcohol is facilitating communion between users.
3. Energy output to obtain the means to meet basic sustenance needs is non-existent with increased leisure time.
4. Intoxication is not seen as being culturally deviant.

Sexually Transmitted Diseases

The Kimberley is a frontier situation with a large Aboriginal population which has recently entered a stage of rapid cultural transition and with a European population highly selected, temporary and southern orientated attracted to a resource rich region undergoing rapid development.

Earlier this decade, syphilis became a problem in the Kimberley spreading rapidly through the Aboriginal population. This prevalence peak was not confined to the Kimberley - other regions, Territories and States reported the same.

The transmission of syphilis within the Aboriginal population was not all venereal. The lifestyle of Aboriginals facilitated the spread by non-sexual means.

Control of syphilis is relatively simple compared with other sexually transmitted diseases. What was required was extensive field activities. This involved screening of the sexual and non-sexual contacts of any index case and the screening of risk groups in high prevalence areas. The patient workload involved in the surveillance of treated persons has been and remains considerable. The results have been encouraging, especially in centres such as Hall's Creek where the prescribed methodology was rigorously applied

TABLE 19
PRIMARY AND SECONDARY SYPHILIS NOTIFICATIONS
BY LOCAL AUTHORITY AREAS 1980

LOCAL AUTHORITY AREA	SYPHILIS PRIMARY	SYPHILIS SECONDARY
Broome	-	2
Halls's Creek	1	-
West Kimberley	10	4
Wyndham East Kimberley	5	4

Table 19 shows the notifications for the Kimberley during 1980. Diagnostic standards for notification have been set. However, there is no mechanism currently for verifying the diagnosis of individual cases notified and, more importantly, for confirming the decision of Medical Officers not to notify a particular case. Every effort is made to ensure an individual is treated or retreated as necessary. The control policy with syphilis will disrupt disease transmission and will reduce the prevalence with time to a stable low level. From time-to-time, an increase in prevalence in particular communities must be expected.

The problem with Gonorrhoea is greater. The disease is a by-product of the structure and fuction of the society of the Kimberley today, and as such, is a formidable medico-social problem. The consequences for the Aboriginal female population are pernicious in terms of the potential for

gonococcal based infertility as gonorrhoea in the Kimberley is peaking in its prevalence.

Gonorrhoea in the Kimberley is not confined to the Aboriginal population but the Aboriginal population contributes significantly to the prevalence. In the Shire of Wyndham in 1980, the Aboriginal/Non-Aboriginal ratio for confirmed cases was 4.3:1.

TABLE 20
GONORRHOEA, CONFIRMED CASES, MALE/FEMALE RATIO,
WEST KIMBERLEY BY MONTH 1980

MONTH	MALE	FEMALE	COLUMN TOTAL	MALE/FEMALE RATIO
January	18	2	20	9:1
February	6	-	6	-
March	16	3	19	5.3:1
April	3	2	5	1.5:1
May	11	5	16	2.2:1
June	2	3	5	1:1.5
July	10	3	13	3.3:1
August	5	3	8	1.7:1
September	9	7	16	1.3:1
October	8	3	11	2.7:1
November	9	1	10	9:1
December	21	3	24	7:1
TOTAL	118	35	153	3.4:1

NOTE: In the West Kimberley, the mid year total population was 6,819 persons. A breakdown of this population by age, sex and ethnic group can be found in Table 18.

Table 20 "Gonorrhoea Confirmed Cases Male/Female Ratio West Kimberley By Month 1980" shows the numbers of confirmed cases of gonorrhoea in the West Kimberley by male/female ratio for each month during 1980. A male/female ratio of 2.9:1 was found for the Shire of Wyndham over the same period.

TABLE 21

PERCENT CONFIRMED GONORRHOEA FOR ALL EXAMINATION PROCEDURES LIKELY
TO DETECT GONORRHOEA AT WYNDHAM DISTRICT HOSPITAL 1980

	URETHRAL SWABS MC & S MALES	VAGINAL & ENDOCERVICAL SWABS MC & S FEMALES
Persons Examined	221	451
Confirmed Gonorrhoea	118	40
% Confirmed	53%	8.8%

Table 21 shows number of persons male and female who had a microbiological examination of secretions, which examination had the potential to detect gonorrhoea, if present. The disparity between the male and female findings is obviously due to the highly selected male sample examined. The potential exists to increase % confirmed female gonorrhoea if the female population screened in hospitals was more selected.

TABLE 22

GONORRHOEA, CONFIRMED CASES, WEST KIMBERLEY
AGE AND SEX DISTRIBUTION 1980

AGE GROUPS	MALE	FEMALE
0-14	2	1
15-19	18	12
20-24	45	12
25-29	19	2
30-34	14	1
Over 35 Years	18	6
Age Not Stated	2	1
TOTAL	118	35

TABLE 23
TOTAL GONORRHOEA, CONFIRMED CASES, WEST KIMBERLEY,
AGE % DISTRIBUTION 1980

0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED
1.96	19.61	37.25	13.73	9.80	15.69	1.96

Table 22 "Gonorrhoea Confirmed Cases, West Kimberley, Age and Sex Distribution".
This table shows the age, sex distribution in the West Kimberley in 1980.

Table 23 "Total Gonorrhoea Confirmed Cases, West Kimberley, Age % Distribution 1980".
This table shows the age % distribution in the West Kimberley during 1980.

The reasons for the peak in prevalence of gonorrhoea in the Kimberley in the last several years is multifactorial. The most important factors operating are considered to be:-

1. European masculinity ratio aged 15-49 years.
2. Given the Aboriginal contribution to the prevalence and the short incubation period for gonorrhoea, the contact tracing exercise is unlikely to be completed before wider dissemination of the infection.
3. Undiscovered gonococcal infection in the female Aboriginal population. The largest proportion of these have no symptoms of the disease. If there are symptoms, unlike in the Aboriginal male, they are ignored for whatever reason until some gonococcal complication occurs. The frequency of pelvic infection in Aboriginal women is said to have increased at the Derby Regional Hospital.
4. Difficulties for physician providers in the contact interview situation with both European males and Aboriginal patients.

The peak in prevalence of gonorrhoea has not escaped the attention of the Director of the V.D. Control Branch, Dr. M. Gollow, who has made a number of visits to the Kimberley to assess the situation. In collaboration with Medical Officers in the Kimberley, a policy for Venereal Disease Control in the region has been formulated and adopted within the Region. A contact tracing form has been designed and is in use between the Medical Officers in the hospitals and the Kimberley Community Medical Officers. The Director on his visits to the Kimberley has made himself available for educational and consultative purposes to physician and other health providers.

Of all the methods available for the control of gonorrhoea, public education and responsibility in the Kimberley has the greatest potential for expansion. There is misinformation and ignorance among the public about the sexually transmitted diseases.

As a first step in improving the public's knowledge and to increase the level of awareness of the sexually transmitted diseases, committees have been established at both the local authority and the regional level. The Director of the V.D. Control Branch has attended all the regional committee meetings. This committee is chaired by the Kimberley Regional Administrator, Mr. John Edwards.

Granuloma-Inguinale is now being detected among the Aboriginal population of the South East Kimberley. It is expected that this disease will spread westwards in the more arid parts of the Kimberley.

The Kimberley is indebted to Dr. Gollow for the enthusiasm and advice he has imparted to the region.

HANSENS DISEASE

Leprosarium

The Leprosarium is a specialised facility at Derby which accepts patients with leprosy or leprosy related problems from the Kimberley and other regions.

TABLE 24
ANALYSIS OF ACTIVE LEPROSY ADMISSIONS BY ORIGIN,
SEX, AGE AND LEPROSY TYPE (1980)

REGISTER NUMBER	ORIGIN	SEX	AGE	CLASSIFICATION
NEW ADMISSIONS				
1229	Kimberley	Male	28	BL
1230	Pilbara	Female	47	LLs
1228	Kimberley	Female	11	BT
1232	Pilbara	Female	70	BT
READMISSIONS				
1022	Kimberley	Male	60	LLs
699	Kimberley	Male	58	LL
1213	Pilbara	Female	12	BT

Multibacillary leprosy at the Leprosarium is treated with combined schedules using Rifampicin Clofazimine and Dapsone. The sensitivity of the bacilli to Dapsone is tested on admission. No secondary sulphone resistance has been detected in relapse cases and no primary sulphone resistance has been diagnosed to date. Dapsone sensitivity testing has been undertaken by the Leprosy Research Unit, National Leprosy Control Centre, Malaysia.

The results of supervised combined chemotherapy are quite remarkable. Mutilation and deformity secondary to leprosy can be avoided. Any significant disability is more likely to be the result of delay in the detection of the case. The pain and discomfort of reactions is considerably ameliorated.

TABLE 25
LEPROSARIUM PATIENT CATEGORIES BY SEX

CATEGORY	MALE	FEMALE	TOTAL
ADMISSIONS			
New (Active)	1	3	4
New (Non-Active)*	-	1	1
Bacteriological Relapse	2	-	2
Readmission for Disability	12	5	17
Social Placement	2	3	5
Multibacillary Leprosy	12	13	25
Kimberley Origin	21	17	38
Other than Kimberley Origin	5	4	9
Aboriginal Patients	24	21	45
Non-Aboriginal Patients	2	-	2
Discharged During 1980	15	7	22
Transferred	1	-	1
Patients as at 31st December	10	12	22
Multibacillary	7	7	14
Paucibacillary	-	1	1
Disabilities	2	1	3
Social Placement	1	3	4

*Non-active leprosy never previously registered, admitted with a disability secondary to leprosy.

Leprosy in the Kimberley

During the last decade, there have been many forces affecting the demographic pattern within the Kimberley. These have resulted in the integration of formerly disparate Aboriginal populations, some of which have had no experience of leprosy.

Despite this, the detection of all forms of leprosy continues to decline. The incidence and age specific incidence are at present the only indices for measuring the effect of control measures taken. From both, we can conclude that there has been a reduction of transmission in the Kimberley.

The endemic areas of the northern Northern Territory and the Kimberley are confluent. Leprosy can be expected to occur in the future in the absence of an effective vaccine, in population groups at the slowly spreading edges of the geographically large area that contains the endemia and within the endemic area among those susceptible persons not yet exposed to the bacillus.

There has been little reduction in the prevalence pool, apart from natural attrition as the majority of patients are multibacillary and are not normally released from control. These cases present some small risk of bacteriological relapse. Over the last five (5) years, there have been

nine (9) such cases. During 1980, there were two (2) bacteriological relapses in lepromatous patients who had been bacteriologically negative for a time.

TABLE 26
DETAILS LEPROSY REGISTER, KIMBERLEY, DECEMBER 1980

Persons on Register	573
On Treatment	236
Surveillance Only	190
Lost to Surveillance	20
Out of Area	27
Deceased During 1980	15
N.T. Patients Managed in W.A.	21

Leprosy Control

This is integrated into the general health services and, except for the specialised personnel at the Leprosarium and the Hansen's Disease Control Nurse, there are no separate operational structures for the leprosy control programme. Disease control depends upon case detection and supervised chemotherapy. Control actions include:-

1. Neonatal B.C.G. vaccination programme for all of Aboriginal descent and to other children at risk.
2. Surveillance of registered patients.
3. Surveillance of contacts.
4. Administration of out-patient treatment. This is with Acedapsone given 8th weekly and in some cases combined with Clofazimine 1200 mgm monthly. The treatment coverage rate is 100%, all patients on out-patient regimes are located, treated and recorded by the field nurse.
5. Population survey. This control action is not categorical serving many other public health purposes in the Kimberley.

TABLE 27
POPULATION SURVEY RESULTS 1980

	Number and Leprosy Classification	Rate
New Cases	(2) BL., BT.	0.02%*
Bacteriological Relapse	(2) LLs., LL.	

*Susceptible population base taken as 11,300. It can be assumed that all new cases are revealed.

Nutritional Anthropometry

The growth pattern of Aboriginal infants and toddlers observed in the Kimberley and elsewhere is shown in Table 28, and Table 29. The percentage who move to a relatively poor nutritional state after six months is demonstrated. The prevalence of nutritional problems are more resistant to interventions, they also vary with different Aboriginal communities.

The factors contributing to growth failure in these children are multiple. That the problem might be corrected by feeding infants and toddlers more frequently and in larger amounts is commonsense. However, improvement in the overall nutrition in many Aboriginal groups, given the competing forces for Aboriginal resources, is going to be difficult. Certain behaviour is deeply ingrained, the culture has moved from a traditional to a transitional one and the population has been thrust into a cash society with all its attendant problems. At this point in time, given the inimical forces operant, Aboriginal mothers in certain situations do not have the capacity for optimal nurture of infants and toddlers.

TABLE 28
KIMBERLEY ABORIGINAL MALES AND FEMALES - WEIGHT PERCENTAGE BELOW THE
THIRD PERCENTILE - 1980

MALES							
AGE IN MONTHS							
YEAR OF BIRTH	2	6	9	12	24	36	48
75	4.4	3.3	27.5	29.3	28.6	26.1	27.0
76	-	9.5	19.5	31.0	29.1	25.6	24.3
77	8.1	3.1	13.5	20.7	22.5	18.8	18.9
78	2.7	6.8	15.0	31.7	35.6	7.6	N/A
79	4.1	7.4	21.3	29.9	26.7	N/A	N/A
80	-	4.8	19.2	31.4	N/A	N/A	N/A

FEMALES							
AGE IN MONTHS							
YEAR OF BIRTH	2	6	9	12	24	36	48
75	-	13.3	9.0	20.0	20.7	23.0	19.5
76	-	5.5	12.1	25.3	19.3	21.8	17.0
77	5.7	10.8	17.5	25.7	22.6	30.0	15.2
78	1.6	9.8	13.0	21.6	23.8	29.3	N/A
79	-	-	9.7	18.1	20.3	N/A	N/A
80	2.5	8.3	19.2	33.7	N/A	N/A	N/A

N/A Not Applicable.

TABLE 29

KIMBERLEY ABORIGINAL MALES AND FEMALES - PERCENTAGE BELOW THE THIRD
PERCENTILE HEIGHT - 1980

MALES							
AGE IN MONTHS							
YEAR OF BIRTH	2	6	9	12	24	36	48
75	6.6	14.2	22.5	35.1	42.1	28.9	29.4
76	23.4	26.1	17.0	39.7	35.8	27.1	22.9
77	20.4	10.0	11.2	27.2	38.0	22.2	18.9
78	8.2	8.3	20.4	27.5	35.0	20.0	N/A
79	9.7	13.5	23.5	28.2	32.3	N/A	N/A
80	4.5	10.9	18.0	27.1	N/A	N/A	N/A

FEMALES							
AGE IN MONTHS							
YEAR OF BIRTH	2	6	9	12	24	36	48
75	2.3	10.0	12.5	22.0	34.6	23.7	21.6
76	4.7	13.8	15.1	28.9	26.3	14.7	16.0
77	11.7	8.6	18.9	22.3	37.1	23.0	6.7
78	5.1	8.4	13.0	20.3	39.4	22.4	N/A
79	3.1	5.7	8.3	14.1	27.5	N/A	N/A
80	2.5	8.6	14.4	27.0	N/A	N/A	N/A

N/A Not Applicable.

Dental Health Services

The decision to regionalise health services in the Kimberley was welcomed by Dental Health Services. A Dental Plan for the Region has been devised.

Within the Kimberley, especially in hinterland communities, a significant population makes no demand for dental services except with onset of painful conditions. Yet, large segments of this population have acute untreated conditions and considerable chronic disease.

An integrated health system with regionally based decision making appealed to the Dental Health Services Branch. Opportunity existed to promote the closer liaison of medical nursing and dental services. Importantly, such a system was not to be passive but to actively present itself in the Region and demonstrate a capacity to reach those members of the community who had an unmet need.

The concept of an "outreach" programme was developed. Essentially, all providers within the system would encourage and facilitate the utilization

of existing facility based services by that segment of the population who, for whatever reason, had barriers and constraints to access to the existing system. All providers within the system would be involved in the promulgation of that information and within the resources of the region, facilitate the means to implement basic dental hygiene, a prototype from which we can learn about the many problems presented by a community based programme for the prevention of periodontal disease, a massive problem among the Aboriginal population.

In addition, the ways and means would be found to deploy dental service providers to cover on an itinerant basis the many hinterland communities within the region, again utilising the assistance of the community based multipurpose health worker to facilitate an active rather than a passive service.

The Region looks forward to the appointment of a senior officer with administrative and clinical skills to achieve full operation success of the Dental Plan.

The commitment of Mr. John Prichard, Director of Dental Health Services and his senior staff toward achieving regionalisation and the integration of Dental Health Services within the Kimberley is appreciated.

Public Health Inspection

During 1980, with regionalisation, the two Health Surveyors based in the Kimberley both administratively and professionally, have come closer to other providers within Public Health. Integration of the Health Surveyors' discipline into general public health functions and activities within the Region has proved mutually satisfying.

These Officers' links to Local Health Authorities within the Region are expected to allow a spin-off of beneficial effects in the future.

We extend our thanks to Mr. Jack Slattery, Chief Health Surveyor for his contribution in facilitating the policy of regionalisation.

Speech Therapy Service

In May, 1980, the Region was fortunate to obtain the services of a Speech Therapist due to Mrs. K. Revell the former Speech Therapist-in-Charge, Fremantle Hospital, taking up residence in Hall's Creek.

Subsequently, approval was obtained to implement a diagnostic and therapeutic service for those with a communication impairment.

Visits to the schools and hospitals at Hall's Creek, Derby, Fitzroy Crossing and Balgo Hills have been carried out on a sessional basis with consideration being given to expanding this programme should funds be made available.

Conferences and Courses Attended

The Director was invited to the Annual Conference of the Victorian Section, Royal Flying Doctor Service of Australia - an address by the Director entitled, "The Kimberley. The Way I See It - And I Live There",

was given. The Director thanks the Victorian Section for their invitation and the hospitality extended.

Dr. C.P. Schindler of Hall's Creek attended the five weeks' Child Development Course in Perth.

Research Activities

The Kimberley Health Region continues to be involved with a number of research groups which include:-

Baker Medical Research Institute, Melbourne

The prevalence of diabetes in the Australian population is 2-3%. Among urban or fringe-dwelling Aborigines the incidence is very much higher. In the Kimberley, for example, a survey by Bastian revealed that 17% of Aborigines over 20 had diabetes (Reference iv)). These people were drawn from communities with generally poor diet and high alcohol consumption. It is generally accepted that non-insulin dependent diabetes mellitus develops as a result of the interaction of environmental trigger factors (related to diet and lifestyle) with an as yet ill defined genetic susceptibility. The research programme is designed to determine firstly those metabolic characteristics which may identify people who are susceptible to diabetes and secondly, the particular aspects of Western lifestyle which could act to trigger diabetes in susceptible people (eg. obesity, dietary factors, lack of exercise). Over the past four years, a series of metabolic studies in Aborigines from the Kimberley have been conducted with particular reference to the extent of urbanisation and the effect of temporary reversion to traditional lifestyle.

Princess Margaret Children's Medical Research Foundation, Perth and the Department of Child Health, University of Western Australia

This group plans a Statewide study of the growth of Aboriginal infants and children up to the age of 30 months (2½ years). This is the most vulnerable period for growth and physical development in childhood and the study is designed to assess the current nutritional state of Aborigines at this age. Dr. Michael Gracey, Mrs. N. Hitchcock and Miss Elizabeth Owles are presently investigating patterns of growth in the healthy Non-Aboriginal infants and children in urban and rural areas of Western Australia. These workers will undertake physical measurements of Aboriginal children throughout the Kimberley and other parts of the State, using carefully standardised methods and equipment. This will allow valid comparisons of growth patterns of Aboriginal and Non-Aboriginal children.

Dr. R.J. Berry and Dr. Michael Gracey have been studying aspects of gastroenteritis in Aboriginal children in various parts of the Kimberley, with financial support from the Princess Margaret Children's Medical Research Foundation and the TVW Telethon Foundation, Perth.

Part of their work has been based on an assessment of patterns of childhood gastroenteritis in W.A. based on extensive statistical information gathered by Community and Child Health Services from 1972-1978. This has revealed important differences in the seriousness

of gastrointestinal infections in Aboriginal infants and children in different parts of the State. More importantly, it has shown an impressive and encouraging drop in deaths from this disease in the last few years and a marked decrease in hospital admissions (GREATER THAN 40%) from 1975-1978 (Reference V)).

Given the importance of childhood gastroenteritis as an index of overall community health standards, this is a remarkable achievement in a very short time and one of the most rewarding improvements produced by Community-based, preventive health programmes in recent years.

Dr. Gracey and Dr. Berry have also commenced a prospective study of causes of childhood gastroenteritis in two Kimberley communities. Detailed microbiological studies are being done on samples obtained from these communities and sent to the Princess Margaret Children's Medical Research Foundation, Perth. E.coli sero-typing is being done on these samples in the Public Health Laboratory Service, London, and the National Research Institute, Wellington, New Zealand. This work is investigating how intestinal bacteria causes diarrhoea and involves experimental studies in the Research Foundation in Perth as well as epidemiological studies related to E.coli sero-typing. The results already show important differences in patterns of gut infection in the Kimberley (Reference vi)) in comparison with children with diarrhoea in Asia (Reference vii)). This has great potential importance because of W.H.O.'s commitment to control diarrhoeal disease and methods needed to identify infecting micro-organisms and their treatment and prevention. These studies will be complemented by others being done by the Princess Margaret Children's Medical Research Foundation in Indonesia and India.

Royal Children's Research Foundation, Melbourne,
Department of Human Nutrition, C.S.I.R.O. Adelaide

During the year 1980, information was published on the trace metal status of Aboriginal people 5 to 70 years in two inland missions - Fitzroy Crossing and the Mowanjum Mission. Previously, work was published on body protein reserves and trace metal status of children in the Alice Springs area and at Mowanjum. These publications (Reference viii) and Reference ix)) revealed a high incidence of plasma copper concentration together with low plasma zinc and iron. It was considered that these findings could be related to the high incidence of hookworm, the practice of geophagia, the consumption of large quantities of white flour and the high temperature (zinc losses in sweat), all of which can lead to reduction of zinc stores. It has been known since 1961 that the factors listed above can surround the syndrome of zinc deficiency in man as described by Prasad (Reference x)) in the Middle East. Alternatively, it was considered that the change in trace metals might be due to infection since such changes occur transiently in acute infection (Reference ix)).

It was decided to investigate the coastal missions Beagle Bay, Lombadina, One Arm Point and Kalumburu because good food is available (fresh fish and beef), the environment is better and at Kalumburu a central kitchen exists which supplies quality food to the people. It was decided to pay attention to general health, to question school teachers and others and to obtain detailed information on height, weight and arm circumference since a cardinal finding in zinc

deficiency is growth retardation.

During 1980, 354 children and adults from the coastal missions were investigated making a total of 718 (including inland people). Half of the people at coastal missions had low zinc levels in plasma (half the expected plasma concentration) while 70% had high copper levels - some double the expected level. Low iron levels were frequent (30%). The children were growth retarded. The weight for age ranged around the 5th percentile and the weight for length around the 10th percentile (since then it has been found that this holds true for La Grange and Broome). The teachers reported that the children were happy, active but with the occasional infection. On inspection they had less muscle mass for length and since their arm circumference was reduced - less fat. These results (Reference xi)) lead to a suspicion that zinc deficiency could also derange the immune system.

There is now an inclination that hookworm, white flour and climate are not of central importance and probably a reduced protein zinc intake leading to moderate protein energy malnutrition with low zinc stores exists (Reference xii)). Geophagia cannot be excluded.

Summary

To those nurses prepared to work in isolated communities, remote to the mainstream of Australian life, I have nothing but praise. During 1980, scarce resources resulted in shortfalls of staff increasing the burden of incumbent staff of centres and outposts.

All who work with the Aboriginal population in the Kimberley should be informed that significant gains in health and related areas have been made this decade.

Without complacency about the rate of progress, there should be no discouragement resulting from criticism, half truths at best, misinformation at worst, promulgated by an eager media which thrives on controversy. Controversy contrived usually as a means rather than an end. Such critics do not detect the gains that have been made, rather that a disparity still exists. As the disparity decreases, the remainder will take increasing time to correct.

REFERENCES

- i) "A Comparison of Aboriginal and Caucasian Mothers in Western Australia (1980)".
Jane F. Seward
Fiona J. Stanley

N.H. & M.R.C. Research Unit in Epidemiology & Preventative Medicine, University of W.A.
- ii) "Aboriginal Child Health and Nutrition". (A review of some aspects and current problems).
A.C. Walker, J. Brocklehurst and M. Ryan
Dept. of Paediatrics, Casuarina Hospital, Darwin
First Menzies Regional Workshop. June, 1981.
- iii) "Aboriginal Health", Peter M. Moodie, A.N.U. Press Canberra, 1973. Pag 78.
- iv) "Coronary Heart Disease in Tribal Aborigines - The West Kimberley Survey". Bastian P. Aust. N.Z. J. Med. 9 (1979) 184-191.
- v) Data R.J. Berry and M. Gracey in preparation for submission for publication.
- vi) Data R.J. Berry, M. Gracey, R.M. Spargo, K.E. Bettelheim and B. Rowe in preparation for publication.
- vii) Merson M.H., Rowe B., Black R.E., Hirq I., Gross R.J. and Eusof A. (1980) "Use of Antisera for Identification of Enterotoxigenic Eschemichia coli" Lancet, i : 222-224.
- viii) Cheek D.B., Graystone J.E. and Holt A.B. and Spargo R.M. "Assessment of Protein Reserves (Cellular Mass) in Aboriginal Children. Amer. J. Clin Nutri 1978 : 31 P. 1328.
- ix) Holt A.B., Spargo R.M., Iverson J.B., Gawkner J. and Cheek D.B. "Serum and Plasma Zinc Copper and Iron Concentrations in Aboriginal Communities of N.W. Australia". Amer J. Clin Nutri 1980 33 : P.119.
- x) Prasad A.S., Halstead J.A. and Nadimi M. "Syndrome of Iron Deficiency Anaemia Hepatosplenomegal Hypogonadism and Geophagia". Amer J. Med 1961 : 31 P.532.

- xi) Cheek D.B., Spargo R.M. and Holt A.B. "Evidence for Zinc Deficiency in Aboriginal Settlements in N.W. Australia". In Preparation.
- xii) Cheek D.B., Smith R.M., Spargo R.M. and Francis N. "Zinc and Environmental Factors in the North West". In Preparation.

RESEARCH PAPERS

- . The Effect of Transition from Traditional to Urban Life-Style on the Insulin Secretory Response in Australian Aborigines.
Kerin O'Dea, Randolph M. Spargo and Kim Akerman.
Diabetes Care, Vol. 3, No.1, January - February, 1980.
- . Some Studies on the Relationship between Urban Living and Diabetes in a Group of Australian Aborigines.
Kerin O'Dea, Randolph M. Spargo and Kim Akerman.
Medical Anthropology, Vol. IV, No. 1, 1-20, 1980.
- . Impact of Westernization on Carbohydrate Metabolism in Australian Aborigines.
O'Dea K. and Spargo R.M.
Diabetologia (Submitted for publication).
- . Adaptation to a Low Carbohydrate Diet in Australian Aborigines.
O'Dea K. and Spargo R.M. (In Preparation).
- . Serum and Plasma Zinc, Copper and Iron Concentrations in Aboriginal Communities of North Western Australia.
Holt A.B., Spargo R.M., Iveson J.B., Faulkner G.S. and Cheek D.B.
Am J. Clin. Nutr., 1980, 33 : 119.
- . Zinc Deficiency in the Aboriginal People in North-West of Australia.
Donald B. Cheek, Randolph M. Spargo, H.J. Hay.
For the book, "Trace Metals of World Significance", ed. Prasad A.S.
In press A.R. Liss, New York.
- . Patterns of enteropathogenicity in childhood gastroenteritis in tropical Western Australia and Indonesia.
Berry R.J., Gracey M., Spargo R.M., Bettelheim K., and Rowe B.
(In Preparation).
- . Evidence for Zinc Deficiency in Aboriginal Settlements in North-Western Australia.
Donald B. Cheek, M.D., D.SC., F.R.A.C.P., Randolph M. Spargo, M.B., B.S., M.P.H., and A.B. Holt.
(In Preparation).
- . Zinc, Copper and Environmental Factors in the Aboriginal Peoples of the North West.
D.B. Cheek, R.M. Spargo and N. Francis.
(In Preparation).

"The Kimberley. The Way I See It - and I Live There".
R.M. Spargo
R.F.D.S. Victorian Section Bulletin.
Submitted for publication.

COMMUNITY HEALTH PROGRAMME



L.J. Holman,
J.P., M.B.B.S., F.R.C.S.E., D.P.H.,
F.A.C.M.A.
Deputy Commissioner of Public Health

SENIOR STAFF

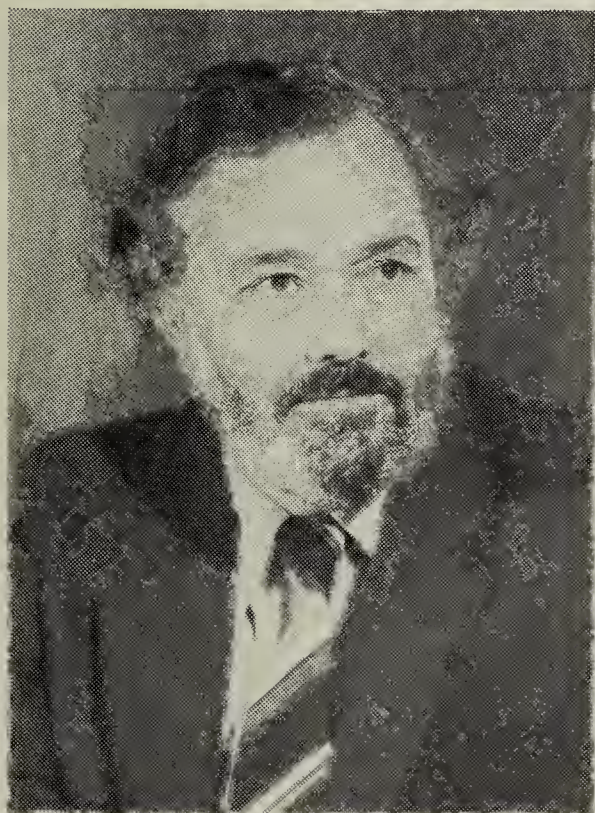
Deputy Commissioner of Public
Health: Dr. L.J. Holman

Senior Physiotherapist: Mrs. C.
Diamond

Senior Chiropodist: Mr. L.C. Foley

Social Work Supervisor: Mr. F.C.
Parker

Assistant Administrative Officer:
Mr. R.J. Wilson

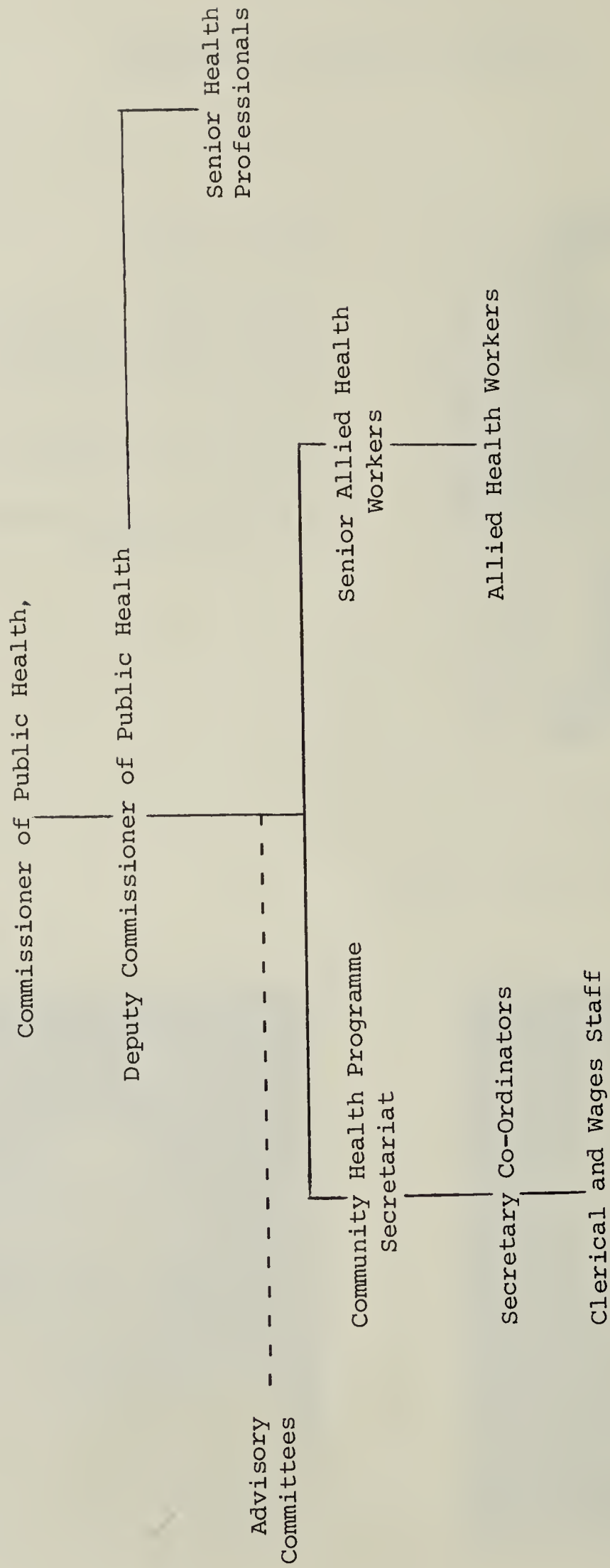


F.C. Parker,
B.Ap.Sc., Dip Soc.Stud.
Social Work Supervisor



Mrs. C. Diamond,
Dip Phys.
Senior Physiotherapist

COMMUNITY HEALTH PROGRAMME -ORGANIZATION CHART



COMMUNITY HEALTH PROGRAMME

Despite funding restrictions, services have been developed and improved within this constraint. The following report has been divided into five major sections which reflect the development and range of services available in a selected number of areas. Due to the relatively high cost of institutionalisation, services funded by Community Health Programme are designed to prevent premature or inappropriate placement in hospitals and nursing homes as well as the promotion of preventative health programmes. Services are initiated to suit the needs of the community or target group for which they are designed.

1. GROUP PROGRAMMES AT COMMUNITY HEALTH CENTRES

A large variety of group programmes were undertaken in 1980 by staff (for example Physiotherapists, Occupational Therapists, Community Health Nurses and Social Workers) employed at major Community Health Centres. Several examples of groups held during 1980 are as follows:-

Lockridge:	Senior Citizens' Keep-Fit; Weight Watchers; Stop Smoking Group; Caravan Park Health Education; Tension Headache Control, Relaxation Group.
Karratha:	Asthma Support; Support for Physically and Intellectually Handicapped Children; Migrant Health Education Programmes; Youth Group.
Kwinana:	Stroke Club; Home Visitors Programme; Keep-Fit Classes for the Disabled; Senior Citizens' Keep-Fit; Slimming for High School Students; Communication Group; Relaxation Group for High School Students; Therapeutic Art and Craft Group.
South Hedland:	Aboriginal Weight Watchers; Caravan Park Health Education; Alcohol and Drug Counselling; Lectures on Health Topics.
Mandurah:	Riding for the Disabled; Occupational Therapy for a Group with Poor Vision; Relaxation Classes.
Busselton:	Keep-Fit, Physiotherapy for Intellectually Handicapped Children; Antenatal Group; Diabetic Clinic, Playgroup.
Geraldton:	Family Planning Clinic: Preparation for Parenthood; Exercise Group; Healthy Lifestyle Programme; Cocos Island Socialisation Group.
Claremont:	Programme for Overweight Teenagers; Stop Smoking; Stroke Club; Assertiveness Training, Pre-Retirement Groups.

2. COMMUNITY HEALTH NURSING

Community Health Nurses are based at major and minor Community Health Centres and are seconded to other locations in country and metropolitan areas. The types of activities carried out at Community Health Centres are diverse and include immunisations, developmental testing of children, conducting group programmes (Keep-Fit, antenatal, weight watchers), audiometrics, liaison with members of the community, visits to stations if based in isolated areas, contact tracing of diseases, clinic treatments and emergency treatments.

Community Health Field Nurses also carry out the following duties:-

- A nurse is employed at the Chest and Tuberculosis Clinic and provides care for clients suffering from asthma and other respiratory diseases.
- Two nurses are employed at the Special Clinic and work in the field of sexually transmitted disease control.
- Two nurses work at the Graylands Migrant Hostel with Indo-Chinese Refugees.
- A nurse working at the Independent Living Centre provides clients with aids to enable them to cope with their disability while living at home.
- A nurse is attached to the Police Department providing occupational health services.
- A nurse works with clients suffering from multiple sclerosis in the metropolitan area.
- A nurse has been seconded to the Department of Neuropathology at Royal Perth Hospital and is involved in contact tracing as well as compiling pedigrees of clients suffering from muscular dystrophy.
- Eight nurses are employed in field duties associated with the Royal Flying Doctor Service.
- Seventeen nurses are allocated to locations throughout the State for general community nursing duties.
- One nurse is employed as a specialist reliever for such disabilities as muscular dystrophy and multiple sclerosis.
- One Nurse has been seconded to work with officers in the Research Unit in Epidemiology and Preventative Medicine on a research project named "Midwives Notification of Birth Systems". It involves the preparation of data on obstetric and neonatal morbidity.

3. PROVISION OF HEALTH EDUCATION

Health Education Officers are employed at Resource Centres in Perth, Armadale, Midland, Claremont, Fremantle, Geraldton, Port Hedland, Busselton, Mandurah and Kwinana. The officers have tailored their approach to the community in which they work. For example, the officers at Fremantle have had much of their literature translated into different languages. Several caravan park programmes were initiated in Port Hedland to cater for the health education needs of isolated mothers and their children. Other programmes have been initiated for groups with special needs such as the older unemployed, isolated women, high school students and Aborigines.

There has been continued involvement with primary and high schools such as the development of programmes on smoking, the drug issue, nutrition and exercise. Also, a major programme was developed for schools on swimming in safe water as a result of findings on amoebic meningitis. The Health Education Unit also utilised audio-visual aides for health education related to the International Year of the Child and other health issues.

4. SERVICES FOR THE AGED

- (a) Home Care Services - There has been an increasing acceptance of home care as a method of avoiding premature institutionalisation especially for aged people. Home nursing was provided at 22 locations, home help at 34 locations, equipment and home modifications at 45 locations throughout Western Australia.
- (b) Social Worker, Geriatric Services - This officer liaises with those personnel involved with the above project. Inservice training was provided in 1980, covering interviewing techniques and the social changes experienced by the aged and disabled.
- (c) Mandurah Day Care Centre - The Day Care Centre is attached to the Mandurah Community Health Centre. It is operated by a Public Health Nurse who organises activities to promote the social rehabilitation of aged clients. Without the present level of support provided at the Centre, the clients (numbering 49 as at December 1980) would regress to their original state and ultimately require either full-time nursing home accommodation and/or hospital treatment.
- (d) The Aged Persons' Support Scheme - This service runs in co-operation with the Cottesloe, Claremont, Mosman Park and Peppermint Grove Town Councils. Although the service is provided by volunteers, a Social Worker based at the Claremont Community Health Centre provides professional supervision and casework when necessary.

As at December 1980, the service was undertaken by 80 volunteers. Services provided included home maintenance, transport, gardening, home visiting, housekeeping and resource advice. It is anticipated that many of the people supported by this scheme will be able to live independently for a longer period than if support was unavailable.

- (e) Community Health Centre Programmes for the Aged - The following types of groups operated from some health centres and were frequently attended by aged persons:-

Pre-Retirement (held in conjunction with W.A. Council on Ageing); Stroke Club; Silver Chain Domiciliary Service; Meals on Wheels; Arthritis Clinic; Senior Citizens' Keep-Fit Classes.

- (f) Senior Citizens' Keep-Fit Classes - During 1980, 19 groups were established in the metropolitan area and two in country areas. Most participants are aged between 65-75 years. These classes are organised by the Community Health Programme's Senior Physiotherapist and a Nurse attached to the Programme. These groups are mainly based in Senior Citizens' Centres. Existing health personnel (such as Community Health Nurses) are used whenever possible to maintain the programmes.

Participants in the fitness groups have shown at least some improvement in mobility, independence in carrying out activities of daily living and feeling of well being. For example, the establishment of walking goals has provided incentive to walk to bus stops, to shopping areas and to participate in social activities.

- (g) Projects such as the Arthritis Community Service, Respiratory Diseases Programme and Statewide Chiropody Service provide facilities frequently required by aged persons. The Arthritis Community Service has been modified by the provision of new guidelines for home visiting in country areas to reduce duplication by other health personnel in the client's areas.
- (h) Subsidies - Under the Community Health Programme Branch, the processing of applications for some State and Commonwealth funded subsidies is undertaken. Subsidies are available for partial funding of the construction of Senior Citizens' Centres, furnishings for aged persons' accommodation, chiropody at Senior Citizens' Centres, operating losses incurred by Senior Citizens' Centres and the salaries of welfare officers.

During 1980 ten Senior Citizens' Centres were processed. Five of these projects involved the construction of new centres, three involved improvements and or additions and the remaining two related to podiatry and kitchen equipment. The State contribution was \$67,500 which represents one-sixth of the cost of the projects.

There are now nineteen Welfare Officer positions approved under the States Grants (Home Care) Act. All are employed by Local Authorities except four who are employed by the following:-

Swan Cottage Homes Inc., Merredin Senior Centre Inc., Council on the Ageing and the Senior Citizens' Welfare Association Inc.

5. WOMEN'S REFUGES

At 31 December 1980 there were 14 facilities being funded to provide emergency accommodation and assistance to women and children in crisis situations. Two new women's refuges were funded during 1980 - funding of Wonthella House at Geraldton commenced on 1 January 1980 and the allocation of funds to O'Neil House at South Hedland was approved in late December.

Funding arrangements are unchanged from those outlined in the report for 1979. As refuges provide a fairly specific ongoing service for a defined group in the community (women and children in crisis situations), there has been little change in the overall operation of the programme, apart from efforts to improve the quality of services.

Several refuge sponsors report that once the initial crisis has been resolved, difficulties in obtaining suitable permanent accommodation and lack of funds are the main factors contributing to families extending their length of stay. Refuge sponsors are spending an increasing amount of time raising funds and other forms of assistance to help the women as well as to operate the refuge.

The level of Commonwealth funding for 1980/81 was an estimated \$30,000 short of the amount required to maintain the level of funds provided to women's refuges at 1979/80 levels. This has placed an added strain on the voluntary organisations which operate refuge facilities.

Ongoing projects received the following allocations for the 1980/81 financial year:-

		PROJECT TITLE	TOTAL ALLOCATION \$
W 1		HOME CARE SERVICES (Medical Sector)	513,100
W 2		STATEWIDE SOCIAL WORK SERVICE (Medical Sector)	19,200
W 3		MANDURAH COMMUNITY HEALTH CENTRE	280,400
W 3A		MANDURAH HEALTH EDUCATION	20,500
W 4		BUSSELTON COMMUNITY HEALTH CENTRE	322,900
W 4A		BUSSELTON HEALTH EDUCATION	14,200
W 11		GERALDTON COMMUNITY HEALTH CENTRE	283,100
W 12		SOUTH HEDLAND COMMUNITY HEALTH CENTRE	276,200
W 13		CHILD DEVELOPMENT CENTRE	523,500
W 15		WA ALCOHOL AND DRUG AUTHORITY	1,188,000
WV16		WOMEN'S HEALTH CARE HOUSE	151,600
W 17		CLAREMONT COMMUNITY HEALTH CENTRE	171,100
W 17A		CLAREMONT HEALTH EDUCATION	21,200
W 23A		HEALTH EDUCATION - PERTH	168,000
W 23B		HEALTH EDUCATION - MIDLAND	37,900
W 23C		HEALTH EDUCATION - ARMADALE	39,900
W 24		LOCKRIDGE COMMUNITY HEALTH CENTRE	212,100
W 26		ARTHRITIS COMMUNITY SERVICE	95,800
W 27		COMMUNITY HEALTH SISTERS	821,700
W 28		RESPIRATORY DISEASES	193,000
W 29		SECRETARIAT	116,700
W 30		HEALTH STUDENTS ATTACHMENT	13,000
W 31		KARRATHA COMMUNITY HEALTH CENTRE	437,000
W 32		MANNING COMMUNITY HEALTH CENTRE	81,300

W 38	LAKE VARLEY COMMUNITY HEALTH CENTRE	69,800
W 40	SOUTHWELL COMMUNITY HEALTH CENTRE	116,000
W 41	KOONDOOLA COMMUNITY HEALTH CENTRE	108,500
W 42	QUEENS PARK COMMUNITY HEALTH CENTRE	91,500
W 44	HEALTH EDUCATION - FREMANTLE	63,800
W 48	CERVANTES COMMUNITY HEALTH CENTRE	31,500
W 49	KWINANA COMMUNITY HEALTH CENTRE	205,600
W 49A	KWINANA HEALTH EDUCATION	23,700
W 50	MOBILE CHIROPODY SERVICE	91,600
W 51	HEARING CONSERVATION IN INDUSTRY	97,800
WV52	ASTHMA FOUNDATION - MEDICAL SOCIAL WORKER	22,500
W 53	HEALTH EDUCATION - PORT HEDLAND	24,700
W 54	HEALTH EDUCATION - GERALDTON	28,200
W 55	PRE-SCHOOL HEALTH TEAM	171,800
WV57	WA DEAF SOCIETY	18,200
W 58	NULLAGINE COMMUNITY HEALTH CENTRE	27,300
W 59	STATEWIDE MAXIMISATION OF RESOURCES	1,000
W 60	LAKE KING COMMUNITY HEALTH CENTRE	18,500
W 61	CENTRAL RESOURCE POOL	159,900
W 71	BREMER BAY COMMUNITY HEALTH CENTRE	18,600
W 78	DALWALLINU COMMUNITY HEALTH CENTRE	93,100
	UNALLOCATED	87,000
	SUB TOTAL : GENERAL BLOCK	7,572,000
W 74	ETHNIC HEALTH SERVICE	62,300
W 79	HEALTH CARE INTERPRETER/TRANSLATOR	24,700
	SUB TOTAL : ETHNIC HEALTH AND TRANSLATORS	87,000
	GRAND TOTAL	7,659,000

	WOMEN'S REFUGES	TOTAL ALLOCATION
MV25	NARDINE WOMEN'S REFUGE (NARDINE WOMEN'S REFUGE COMMITTEE)	110,300
MV43	WARRAWEE WOMEN'S REFUGE (FREMANTLE CITY COUNCIL)	93,800
MV46	MARY SMITH NIGHT SHELTER (MARY SMITH N.S. ASSOCIATION)	39,900
MV62	AVE MARIA HOUSE (DAUGHTERS OF CHARITY)	38,300
WV63	BYANDA WOMEN'S EMERGENCY CENTRE (SALVATION ARMY)	20,100
WV64	STIRLING WOMEN'S REFUGE (CITY OF STIRLING)	82,300
WV66	LUCY SAW CENTRE (LUCY SAW CENTRE ASSOCIATION)	39,600
WV68	ACRAH WOMEN'S REFUGE (ASSOCIATION FOR THE CARE AND REHABILITATION OF HOMELESS PERSONS)	55,000
WV69	EMMAUS WOMEN'S REFUGE (SOCIUS INC.)	41,300
WV72	NORTHAM SHARE AND CARE WOMEN'S REFUGE (SHARE AND CARE GROUP)	17,200

WV75	FINLAYSON HOUSE (GOLDFIELDS WOMEN'S REFUGE ASSOCIATION)	36,000
WV76	JESUS PEOPLE WOMEN'S REFUGE (JESUS PEOPLE INC.)	23,600
WV77	WONTHELLA HOUSE (GERALDTON WOMEN'S REFUGE ASSOCIATION)	28,600
WV80	O'NEIL HOUSE (SALVATION ARMY - PORT HEDLAND)	2,000
		628,000

Allocations to the Mental Health Sector for 1980/81 are listed below. Information relating to these projects is contained in Mental Health Services' annual reports.

	PROJECT TITLE	TOTAL ALLOCATION
W 5	COMMUNITY PSYCHIATRIC DIVISION	364,690
W 6	COMMUNITY SERVICES (DIVISION FOR THE INTELLECTUALLY HANDICAPPED)	785,899
W 7	CLINICAL ENGINEERING (DIVISION FOR THE INTELLECTUALLY HANDICAPPED)	6,500
W 8	CLINICAL TEAMS (DIH)	62,416
W 9	IRRABEENA CLINIC (DIH)	129,310
W 10	PYRTON DAY ACTIVITY (DIH)	25,342
W 14	COMMUNITY DEVELOPMENT CENTRE	31,962
W 21	HAVELOCK CLINIC	49,412
W 22	FREMANTLE CLINIC	49,420
W 35	COMMUNITY PSYCHOLOGY : CO-ORDINATOR IN TRAINING	25,738
W 36	RESEARCH PSYCHOLOGIST	21,492
W101	BENTLEY CLINIC	113,330
W102	HOVE CLINIC (DIH)	780,846
W111	ARMADALE CLINIC	198,267
W112	SWAN CLINIC	227,282
W113	GRADUATE WELFARE OFFICERS (DIH)	57,160
W114	GRADUATE ASSISTANT (DIH)	15,248
MVW1	GROW WESTERN AUSTRALIA	50,000
		\$2,994,314

PHYSIOTHERAPY SERVICES

Public Health Division Physiotherapists are employed in the following areas.

Child Development Centre	- 1 Senior
	- 1 Sessional Senior
Parenthood Section	- 1
Willeton Special	- 2
Koondoola Special School	- 2
Multiple Sclerosis Society	- 1
Chest Clinic	- 1 Sessional
Busselton Health Centre	- 2 F/T & 1 Sessional
Karratha	- 2 F/T
Kwinana	- 1 F/T
Lockridge	- 1 F/T
Mandurah	- 2 F/T & 1 Reliever
Port Hedland	- 1 F/T & 1 Reliever

Communication is maintained by:

- (a) Telephone
- (b) Regular visits
- (c) Monthly reports
- (d) Conferences
- (e) Students where applicable

Current services offered by the Department are very varied and are aimed at making a maximum contribution to the patient treatment and education.

Child Development Centre (CDC)

Children with developmental problems are assessed and their treatment carried out either at the Centre or by referral to local services.

During the year the service has been improved by:

- (a) Training parents to be the therapists.
- (b) Baby massage has been taught as a treatment technique to help the tense mother and irritable baby.
- (c) A service has been provided to Ngala-A.
- (d) A consultant phone service has been instituted.
- (e) Services to country districts have been improved.

Parenthood Section

This department has developed considerably over the last 12 months. In addition to providing care for expectant parents, physiotherapists both public and private may attend to improve their skills and gain new ideas.

Services provided include:

- (a) Husband coached classes.
- (b) Classes for single parents.
- (c) Video material has been produced for people unable to attend classes

in both the ante and post natal areas.

(d) A special project called "Change of Lifestyle" has been produced.

Special Schools

Therapists treat children with physical handicaps, organise their appliances and participate in programmes designed to make their life as normal as possible; i.e.

- (a) By the development of behaviour motivation techniques.
- (b) By attending integration classes with normal schools.
- (c) By sporting activities - ICE SKATING!!!
- (d) Special arrangements have been made for the brighter children.

Multiple Sclerosis Society

The physiotherapist attending the Centre is a specialist in neurology and rehabilitation and gives service designed to maintain independence in the disabled for as long as possible.

Chest Clinic

A sessional service is provided for referred patients suffering from respiratory disease.

Health Centres

In addition to the full range of physiotherapy activities in all Centres, current programmes include:

1. Fitness programmes for the elderly.
2. Ante and post natal programmes.
3. Classes for asthmatic children.
4. Sports medicine clinics.
5. Classes for mentally handicapped at special schools.
6. Screening programmes for children with learning problems and the appropriate treatment.
7. Stroke groups.
8. Exercise groups for the disabled.
9. Holiday programmes for children with working parents.
10. Walking programmes for weight watchers.
11. Staff fitness groups.
12. Riding for the disabled.

Treatment Figures

C.D.C. - 2256

Parenthood - 3929

Schools - Koondoola - 74 students

Willeton - 84 students

Multiple Sclerosis Society - patients numbers average 30. Some alternate and some 2 weekly for 2 months and 1 months rest. Others come once weekly on a maintenance level. Over 100 patients have received home visits. Chest Clinic - A total of 1244 treatments given during the current year.

Health Centres	Treatments Given
Busselton	10,283
Karratha	18,180
Kwinana	3,971
Lockridge	4,567
Mandurah	19,814

Future Planning

C.D.C. - To continue to provide as immediate a service as possible to the families referred to the C.D.C. and to continue to encourage early referrals of babies requiring physiotherapy programmes.

Parenthood Section

- (a) The establishment of regular informal meetings where matters relating to ante natal and post natal obstetrics can be discussed by working physiotherapists.
- (b) The production of a slide/tape programme on back care in pregnancy and after.
- (c) Recording a cassette on general relaxation for use after labour and when women are home and finding rest and relaxation specially difficult.
- (d) Further investigation into the maintenance of fitness in women during childbearing years.
- (e) Continual research into the needs of country physiotherapists and strenuous efforts to supply them.

Health Centres

- 1. Programmes for children with co-ordination problems.
- 2. Research into treatment of sprained ankles using two separate methods of treatment.
- 3. Expansion of programmes for the elderly.
- 4. Expansion of post-natal groups.

The staff employed by the Public Health Division provide a service of a very high standard and devote many hours for group work in their own time. They are young and enthusiastic and a credit to the profession.

SOCIAL WORK SERVICES

STAFFING - 31ST DECEMBER 1980

Departmental Central Resources:

- 1 Social Work Supervisor
- 1 Social Worker (Reliever)

Community Health Centres:

A social worker is employed in each of the Community Health Centres at Busselton, Claremont, Lockeridge, Geraldton, Karratha, Kwinana, Mandurah and South Hedland.

Community and Child Health Services:

Two social workers at the Child Development Centre. A full-time position is shared between two social workers working at the Queens Park and Koondoola Child Health Service Centres. One social worker is employed three days per week at the Southwell Child Health Service Centre, with the two remaining days at the Child Development Centre.

OBJECTIVES

The objectives of the Departmental Social Work Service are:

- i) To identify, interpret and treat emotional and social stress, together with environmental factors contributing to and or precipitating health and or developmental problems.
- ii) To provide specialised services based on the understanding of psycho-social implications of illness and handicap.
- iii) To meet social and emotional needs associated with illness, loss and grief in a growth promoting way.
- iv) To work with other elements of the health care service in providing an integrated service to meet health related needs at significant points of the life cycle.

GENERAL

In terms of overall objectives, insufficient emphasis has been able to be given to preventative and early interactive work because of the overwhelming pressure of work for intervention in crisis situations and the alleviation of immediate stress.

There are considerable differences in the type of work undertaken by the Social Workers in their various attachments throughout the Department. The health needs met, obviously have varied according to the socio-economic and demographic composition of the areas. Social Workers working in highly specialised health care teams such as the Child Development Centre have a more specialised function than does the Social Worker working at the Karratha Community Health Centre, where she is the only Social Worker working in a rapidly developing, extremely isolated location, where more

generalised skills are called for.

With the limitations on funding, to increase the numbers of Social Workers in the field, the use of volunteers to assist professional practice is becoming increasingly important. Every effort is being used to find suitable volunteers to perform certain functions in meeting the needs of the community. Innovative volunteer programmes are being conducted at all health centres, as well as client self help projects, in desperate attempts to stretch the professional man hours available.

Perhaps the most spectacular of these volunteer programmes is the "Aged Persons Home Support Service" being run in conjunction with the Cottesloe, Claremont, Mosman Park and Peppermint Grove Local Government bodies, where a Social Worker from the Claremont Community Health Centre is to provide the necessary support to a team of volunteers who will aim at supporting aged and invalid people in those areas to be maintained in their own homes.

Currently few formal mechanisms exist and little research has been undertaken to assist Social Workers measure their effectiveness in terms of outcome of intervention. Social Workers have had to rely on client feedback and their own and clients comparison of outcome with mutually defined goals. Feedback from clients and from referring health professionals, especially private medical practitioners, has been positive and encouraging.

In Appendices A and B is a summary of some of the work undertaken by Social Workers in different positions throughout the State. The differences in the kinds of work undertaken do not make the statistics of one social worker's work comparable with another's. Nor do the statistics indicate the significant amount of community work of a direct and or consultative nature undertaken.

ACKNOWLEDGEMENTS

Due acknowledgement must be paid to the medical practitioners in their private practices throughout the State with whom it has been the Social Workers privilege to work. They have been a constant source of support.

Last but not least, acknowledgement must be paid to the nurses and other health professionals together with the administrative officers, who have all been part of the team effort in working to provide a happier and healthier community.

APPENDIX A

BREAKDOWN IN PERCENTAGE TERMS OF REFERRALS

COMMUNITY HEALTH CENTRES	Total Refer- rals	Doctors	Nurses	Self Referred	Other Agencies	Other Profess- ionals	Hospi- tals	Home Visits	Office Inter- views	Groups (Individual) Attendances
Busselton	251	35.0%	13.0%	29%	13%	9.5%	.5%	405	620	105
Claremont+	124	17.0%	19.0%	35%	15%	14.0%	-	59	352	248
Lockridge	219	28.0%	1.0%	38%	31%	1.0%	-	734	885	46
Geraldton	262	28.0%	21.0%	37%	14%	-	-	376	401	-
Karratha*	161	16.5%	.5%	32%	24%	-	27.0%	209	696	-
Kwinana	268	5.5%	23.0%	38%	32%	.5%	1.0%	325	661	83
Mandurah	226	30.0%	10.0%	30%	12%	12.0%	6.0%	335	400	-
South Hedland	242	8.0%	.5%	17%	26%	2.5%	46.0%	352	631	28

+ 20 Hours per week spent with Aged Persons Support Scheme
* Position vacant for 2 months of the year.

APPENDIX B

BREAKDOWN IN PERCENTAGE TERMS OF REFERRALS									
Total Refer- rals	Drs.		Nurses		Hospi- tals	Self Referred		Other Profess- ionals	Home Visits
									Office Inter- views
								Groups (Individual) Attendances	Professional+ Consultations

COMMUNITY & CHILD HEALTH
SERVICES

Child Development Centre*
Social Workers (2.5 full-
time)

244	25%	37%	2%	18%	18%	373	476	189	1907
-----	-----	-----	----	-----	-----	-----	-----	-----	------

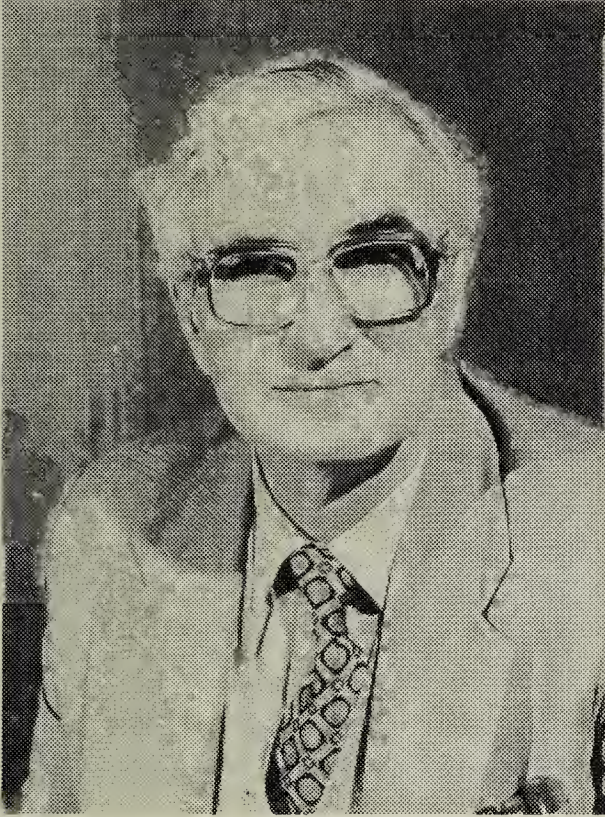
CHILD HEALTH SERVICE
CENTRES

Queens Pk. 14½ hrs. per wk.	33	12%	44%	-	18%	15%	62	60	208	137
Koondoola 23 hrs. per wk.	93	19%	61%	-	10%	8%	195	49	106	351
Southwell 20 hrs. per wk.	65	2%	58%	-	26%	13%	167	13	-	182

*Includes referrals from other sections of Community and Child Health Services

+Significant consultations requested by nurses and other professionals.

PHARMACEUTICAL SERVICES BRANCH



W.M. Griffiths,
B. Pharm., F.P.S. (G.B.), M.P.S.
Principal Pharmacist

SENIOR STAFF

Principal Pharmacist: Mr. W.M.
Griffiths

Deputy Principal Pharmacist: Mr. G.F.
Foley

Pharmacist: Mr. M. Cousins

Pharmacist: Mrs. J.A. Luke

Senior Clerical Officer: Mr. C. Hayes

PHARMACEUTICAL SERVICES BRANCH - ORGANIZATION CHART

Commissioner of Public Health,

Principal Pharmacist

Deputy Principal Pharmacist

Pharmacist

Pharmacist

Senior Clerical Officer

Poisons Inspectors

PHARMACEUTICAL SERVICES BRANCH

The Branch re-organised its activities during the year. We requested a review of the methods of operation of the Branch by the Methods and Organisation Section of the Department. Various recommendations were made and implemented and this has enabled us to cope with an increased work load without detriment to our standard of service.

POISONS ACT

The Notification of Diseases (Non-Communicable) Regulations of 1958 were revoked and new corresponding regulations provided for within the context of the Poisons Act Regulations, in combination with the preparation of New Drugs of Addiction Notification Regulations for the notifying of persons addicted to drugs. A medical practitioner who, in the course of his practice, becomes aware of, or suspects that a person is addicted to drugs is required to notify the event to the Commissioner within 48 hours in a sealed envelope marked "CONFIDENTIAL" in a conspicuous place above the address on the envelope. The law in respect to the prescribing of drugs of addiction was brought up to date in the light of modern medical practice. Measures were instituted to prevent or detect, so as to refer to treatment centres, persons travelling from medical practitioner to medical practitioner to procure drugs of addiction to satisfy their cravings. Pharmaceutical Chemists are now required to forward to the Commissioner, not later than 21 days after the last day of each month in which a drug of addiction has been dispensed, the prescription form.

The Third Schedule of the Poisons Schedules was brought into line with the Uniform Poisons Standard recommended by the National Health and Medical Research Council. A Third Schedule substance is not allowed to be stored in a Pharmacy in any area or in any manner that allows physical access to it by anyone other than the members of staff at a pharmacy and may not be sold or supplied by retail, except under the personal supervision of the pharmacist. This Schedule is comprised of medicines which are of a sufficiently dangerous nature to warrant their distribution being restricted to pharmacists under tight control to ensure that they only pass into the correct hands, but for which there may exist such urgent need that the supply if restricted to prescription would cause hardship.

It is recognised that Third Schedule medicines are ones in which personal advice may be required by the purchaser concerning frequency of administration and general toxicity, and with which excessive unsupervised self-medication is unlikely if the normal professionalism of the pharmacist is insisted upon.

During the course of the year the Schedule Seven list of extremely dangerous poisons was brought up to date and the conditions, restrictions and limitations applicable to each of these extremely dangerous poisons were gazetted during March.

Following indications that persons in the drug trafficking trade were peddling barbiturates; barbiturates were declared to be specified drugs, a special category of drugs which makes improper possession or trading

liable to proceedings under the Police Act.

PESTICIDES

Paraquat is a widely used herbicide essential to modern food production methods, but overseas experience has shown that when ingested the subsequent poisoning is very difficult to treat and has a high degree of delayed mortality. Consequently, the National Health and Medical Research Council examined toxicity problems of paraquat and recommended that its formulation should contain an emetic which delays gastric emptying. The Pesticides Regulations were amended to ensure that paraquat preparation containing more than 3 percent of paraquat shall contain such an emetic. The Regulations were also tightened to ensure that no person shall use a pesticide in any manner, place or circumstance which is dangerous, harmful or injurious to health and that where any pesticide has been applied in a particular form or concentration a Health Surveyor or other authorised person may take a sample of the pesticide as so applied.

A review was made of the administrative methods applicable to pesticides and a system of computerisation was designed to hold down costs and maintain efficiency to cater for the increased new numbers of new agricultural chemicals now starting to appear in the light of new technological discoveries in chemical and agricultural engineering. The system was designed by specialists from the Computer Division of the Treasury, the State Health Computing Service, the Department of Agriculture and officers of this Branch. It is hoped that the system will be incorporated at the end of 1981 and the beginning of 1982. Computer space has been offered by the State Health Computing Service.

ADMINISTRATION

Mr. Gerard Francis Foley, the Deputy Principal Pharmacist, maintained his representation on the various committees associated with Pharmaceutical Services such as the Hospital Pharmacy Advisory Committee, Tender Board Advisory Committee on Drugs, the Hospital Disinfectant Advisory Committee, and the Inter-Hospital Pharmacy and Liaison Committee. Wanneroo Hospital opened in August and the Pharmacist, Miss Barbara Bennett, transferred to it from the Mount Hospital. She also looks after Perth Dental Hospital and the Metropolitan Country Clinics as well as the Paraplegic Centre in Shenton Park. During 1980, we received a visit by Mr. R.W. Tribe on the National Biological Standards Laboratory and he and Mr. Foley inspected all factories which manufacture therapeutic goods in Western Australia as well as several hospitals. They found that none failed to meet the exacting standards required under the Code of Good Manufacturing Practice. This was a pleasing result.

Mr. M. Cousins assisted with preparation of work for the Pesticides Advisory Committee and also attended two meetings of the National Therapeutic Goods Committee in Canberra on behalf of the Department.

Mr. Christopher Hayes became Acting Senior Clerical Officer in place of Mr. Philip Moody who was relieving in higher duties throughout the year.

Mrs. Maxine Parrington - Typist, replaced Mrs. Joy Le Cramm who transferred to the Tuberculosis Control Branch.

During the year there were five meetings of the Poisons Advisory Committee and nine meetings of the Pesticides Advisory Committee. 1,179 Pesticide Formulations were registered as at the 31st December, 1980; 229 new applications were received of which 86 were registered, the remainder being still under consideration. 84 applications were received for clearance of new agricultural chemicals in co-operation with the National Technical Committee on Agricultural Chemicals based in Canberra, 12 of these being new substances and 72 of the applications being applications for extensions or modifications of use of previously cleared chemicals.

DENTAL HEALTH SERVICES



Mr. J.L. Prichard,
Dip. D.S., B.D.Sc., F.I.C.D.
Director

SENIOR STAFF

Director: Mr. J.L. Prichard

Deputy Director: Mr. H.G. Lamplough

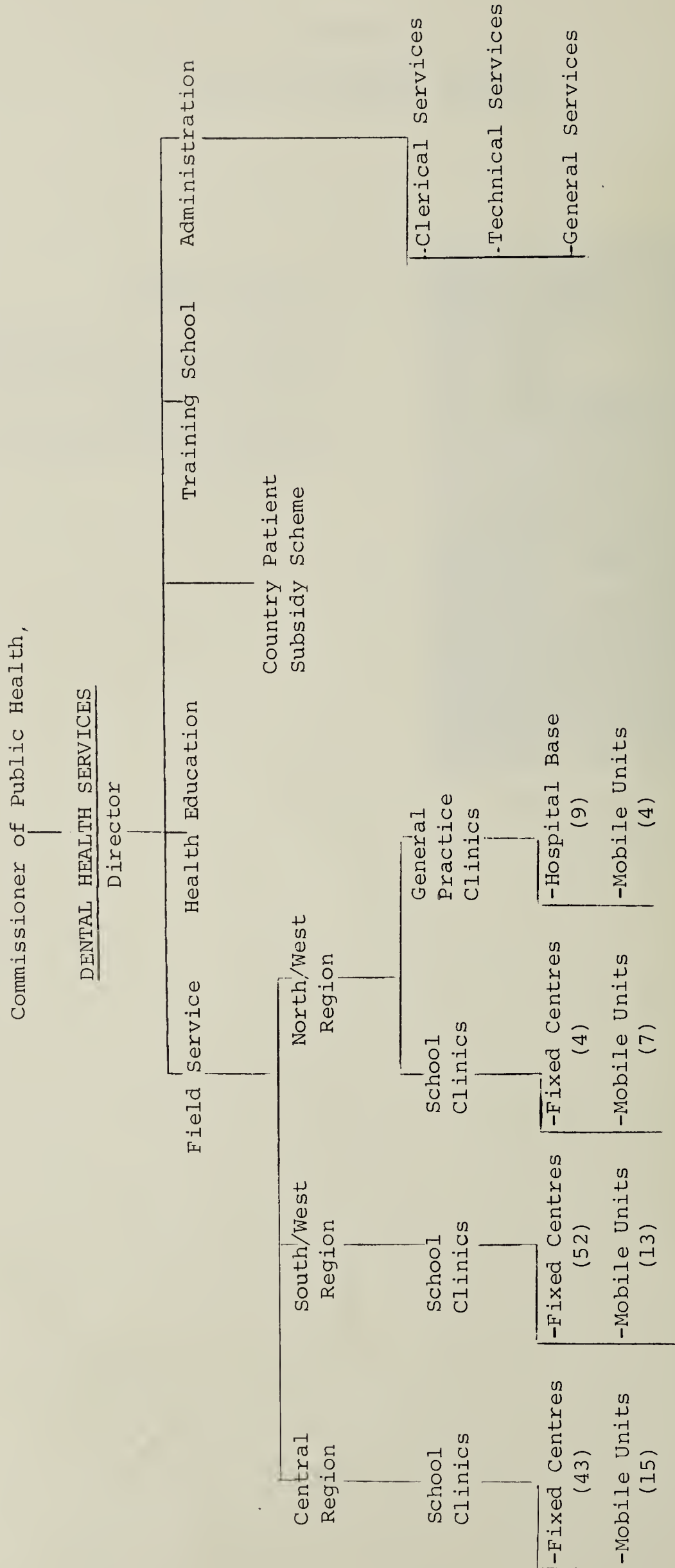
Principal, School of Dental Therapy:

Mr. D.C. Neesham

Assistant Administrative Officer: Mr.

G. Drimatis.

DENTAL HEALTH SERVICES - ORGANIZATION CHART



DENTAL HEALTH SERVICE

1. CLINIC SERVICE

1.1 RURAL AND REMOTE AREAS

1.1.1 Kimberley Region

Regular clinics are maintained in Wyndham, Derby and Broome with visiting services to Kununurra, Halls Creek, Koolan Island and Missions at Kalumburu, Lombadina, Beagle Bay, La Grange, One Arm Point, Ombulgarri and the Derby Leprosarium. Major stations, Sturt Creek, Gordon Downs and Nicholson are visited annually. In 1981 it is proposed to increase by 2, the number of Dental Officers engaged in the Kimberley Region.

1.1.2 North West Regions

Regular clinics are maintained at Port Hedland, Wickham, Exmouth, Paraburdoo and Tom Price. These clinics provide visiting services to Goldsworthy, Shay Gap, Marble Bar, Telfer, Yandi Yarra, Strelley, Onslow, Wittenoom.

1.1.3 Southern Region

Since 1968 the Branch has conducted a dental clinic at Ongerup, serving the population at Gnowangerup and Jerramungup. The clinic is now conducted by a private dental practitioner.

In addition to the above services, mobile road clinics provide services to the North Eastern Goldfields, Trans Line, Murchison and Gascoyne Regions, South Agricultural areas, and Jurien Bay, Lancelin areas.

An aerodontal service provided dental treatment for the Eyre Highway, Trans Line, and Nullabor Stations, Gascoyne Region and remote areas including Giles Weather Station and Warburton Ranges Mission. Mr. I. Alderdice who retired from the Department in 1980 gave many valuable years of service to the people of the outback. His contribution is gratefully acknowledged.

Two visits were also made to the Cocos Islands to provide dental care.

1.2 SCHOOL DENTAL THERAPY CLINICS

1.2.1 At 31 December 1980, 462 primary schools were serviced by 127 Dental Therapy clinics and training schools.

A total of 165,317 primary children were eligible for dental care. This represents 90.38% of the total enrolled primary school child population. A further 9,200

pre-school children were enrolled, representing 21% of the 4 to 5 year old age group in this State.

TABLE 1
COVERAGE BY SCHOOL DENTAL SERVICE

YEAR	TARGET POPUL. (Primary Sch. children)	NUMBER OF DENT. THERAPY CENTRES	NO OF CHILDREN WITH ACCESS TO DENTAL THERAPY CENTRE	% OF CHILDREN WITH ACCESS TO DENTAL THERAPY CENTRE
1973	150247	3	2663	1.77%
1974	152228	9	9810	6.44%
1975	154089	14	18099	11.74%
1976	157359	39	46466	29.52%
1977	162081	65	70942	43.76%
1978	165086	89	98319	59.55%
1979	165245	102	110905	67.11%
1980	165317	127	149422	90.38%

1.2.2 School of Dental Therapy

Children from 18 schools in the vicinity of Mt Henry Training School and from 13 schools in the vicinity of Warwick Training School attended for preventive dental services.

Enrolments for treatment were:

Mt Henry	3500
Warwick	4500

2. TRAINING COURSE FOR SCHOOL DENTAL THERAPIST

2.1 FIRST YEAR

10 trainees commenced their first year in February 1980.
9 trainees satisfactorily completed the first year.
1 trainee failed the course.

2.2 SECOND YEAR

26 trainees successfully completed second year and will officially graduate on 1 February 1981.
1 trainee is required to sit supplementary examinations.
1 trainee requires extra tuition and should complete the course

during the first term, 1980.

3. DENTAL HEALTH EDUCATION

3.1 The Dental Health Education Unit provided advisory and support services for dentists and therapists in the field and training school. The principal activity was conducting 18 in-service seminars for field staff.

3.2 In addition, educational services were provided for outside agencies. A total of 120 lectures were given as listed below:

Student Nurses	12
Student Teachers	9
Community & Child Health Service	6
Courses	
High Schools	15
Early Childhood Care Courses	15
Advisory visits to Primary Schools	12
not yet included in the School	
Dental Service	
Pre-School Parents Groups	26
Other Parents Groups	10
Canteen Managers	3
Dental Students	3
Dental Nurses	3
Miscellaneous	6

3.3 DISPLAYS

Displays promoting oral health were mounted at shopping centres and country shows on 6 occasions.

3.4 GUIDELINES FOR DENTAL HEALTH EDUCATION PROGRAMMES FOR TEACHERS

Comprehensive guidelines were prepared with the assistance of officers of the Health Education Unit. These will be available to primary school teachers through Dental Therapy Centres in 1982.

4. PREVENTION OF DENTAL DISEASES IN CHILDREN

4.1 This report does not present all the statistical data relative to the dental health of primary school children.

4.2 The combined effects of the fluoridation of public water supplies and the school dental service are now apparent.

Prior to 1968 when fluoridation commenced, a comprehensive dental examination of Western Australian school children was completed. A comparison of the data collected then with that available today shows:

4.2.1 Dental caries (decay) is reduced in the permanent teeth of 6 year olds by 80%, in 8 year olds by 57% and in children aged 10 by 60%.

- 4.2.2 The numbers of deciduous molar teeth in children aged 6-8, needing to be extracted because of acute dental caries has fallen from 111 per 100 children in 1968 to 28 per 100 children in 1977.
- 4.2.3 The proportion of children who have never experienced dental decay has increased approximately 4 fold.

TABLE 2

PROPORTION OF PRIMARY SCHOOL CHILDREN AGED 6-10,
WHO HAVE NEVER EXPERIENCED DENTAL CARIES

	1967	1978
Age 6 years	9%	34%
Age 8 years	2%	20%
Age 10 years	-	10%

4.3 CONTROL OF DENTAL DECAY

Whilst neither the fluoridation of public water supplies or the School Dental Service can prevent all dental caries in primary school children that decay which does occur is largely controlled - i.e. it is detected in a very early age and the extension of the disease process to the loss of teeth is prevented. Until further effective preventive measures are available the control of this disease in the community will have to be effected by School Dental Services. Reduction in the effectiveness of control will bring about a return to the epidemic nature of the disease as it was in 1968 and earlier.

5. CONSTRUCTION OF SCHOOL DENTAL CLINICS

The objective of the School Dental Service was to complete coverage of the primary school population by 1980.

The 25 clinics commissioned during 1980 completed the coverage up to 90%.

The addition of 10 clinics in 1981-4 will finalise the School clinic building programme.

The source of Capital funds for the building and equipping of School dental clinics is shown in the following table.

		STATE	COMMONWEALTH
	1973-4 }	-	
	1974-5 }	-	\$ 271,006
	1975-6	-	1,523,033
	1976-7	\$ 103,041	927,373
	1977-8	262,458	787,375
	1978-9	No allocation	No allocation
	1979-80	225,000	225,000
	1980-1	-	-
	(1981-2	207,000	-
PROPOSED	{ 1982-3	161,000	-
	{ 1983-4	251,000	-
	TOTAL:	\$1,048,499	\$3,733,787

6. SUBSIDISED DENTAL CARE

6.1 The Country patients subsidy scheme enables eligible persons in areas with no Government Dental Clinic to receive care from the local private practitioner and obtain a cash subsidy from the Government towards the cost of the treatment. The amount of subsidy is calculated in accordance with an income test. The patient is responsible for payment of the balance of the account to the dentist.

6.2 Persons eligible for assistance include:

6.2.1 School children, subject to family size and family income... Primary school children are excepted. They are required to receive care from either the School Dental Service, or a dentist of their choice at their own cost.

6.2.2 Pensioners (aged, widowed and invalid).

6.2.3 Recipients of benefits (supporting parent, sickness, unemployment).

6.2.4 Missionaries.

Persons receiving benefits who are under the age 18 years are considered to be the responsibility of the parent (unless they are living away from home). Applications relating to such persons should be completed and signed by the responsible parent. Total family income is required to be detailed.

With respect to recipients of pensions and benefits, eligibility is dependant on a qualifying period of 6 months; i.e. the applicant must have been in a eligible category for at least 6 months prior to application for subsidy. The qualifying period

does not apply to school children if eligibility is established by income test only; and not as a result of parents being in receipt of a pension or benefit. Exception to this restriction applies to the provision of emergency treatment. Emergency treatment includes relief of pain, treatment of infection, treatment of traumatic injuries and repairs to dentures.

Persons who belong to private health funds and who have cover for ancillary benefits are not eligible for subsidy assistance.

6.3 PAYMENTS

Payments were made to dental practitioners during 1980. Without their assistance the programme could not be extended to the eligible recipients.

During 1980 payments were made as follows:

6.3.1 Total number of approved applications 3656;

485 children
1477 age pensioners
1694 others

6.3.2	Number of Examinations (complete)	1945
	Number of Teeth Extracted	2610
	Number of fillings placed	5220
	Number of denture patients	1211

6.3.3 Total cost of Services Rendered \$576,245;

\$ 36,006 (children)
\$283,878 (age pensioners)
\$256,361 (others)

6.3.4 Payments made by the Department \$501,607;

\$ 33,777 (children)
\$239,309 (age pensioners)
\$228,521 (others)

6.3.5 Payment by recipients \$ 74,638.

7. STAFF

Appointments made during the year resulted in a staff total of 544. Distribution of staff at 31 December 1980 was as follows:

7.1 ADMINISTRATION

Dental Officers (5)
Therapists (6)
Clerical and General (23)
Wages (9)
DCA's (4)
Dental Cadets (14)

7.2 CLINIC SERVICE

7.2.1 Metropolitan Region

Dental Officers (14)
Dental Therapists (127)
Dental Nurses/Assistants (77)
Dental Technician (1)

7.2.2 Country Region (South West)

Dental Officers (9)
Dental Therapists (81)
Dental Nurses/Assistants (45)

7.2.3 Rural and Remote Region (North West)

Dental Officers (14)
Dental Therapists (17)
Dental Nurses/Assistants (26)
Wages (2)

7.3 DENTAL THERAPY TRAINING SCHOOL

Dental Officers (7)
Dental Therapists (6)
Dental Nurses/Assistants (12)
Dental Technicians (1)
Trainee Therapists (38)
Clerical and General (1)
Wages (5)

8. ACKNOWLEDGEMENTS

Throughout the year this Branch has enjoyed the support and assistance of the Commissioner of Public Health, Dr. J.C. McNulty and the Deputy Commissioner of Public Health, Dr. L. Holman, as well as the continued co-operation of all Branches and sections of Public Health.

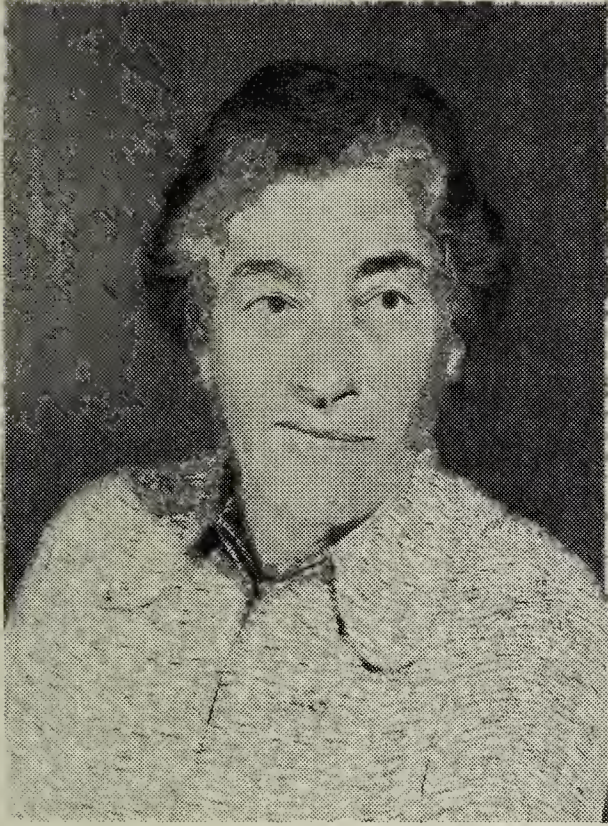
As Director I wish to acknowledge this support and in particular;

- a) Principal Psychologist, Mental Health Service, Mr. R. Smith for assisting in arranging Psychology and the Human Relations Course. Clinical Psychologist, Mr. G. Van Ierland conducted Psychology and Human Relations lectures to first and second year trainees.
- b) Dr. V. Blackman, Director of State Health Laboratory Services, for assisting in arranging the Microbiology practical classes. Mr. M. Elliott assisted in conducting these classes.
- c) The Health Education Services Unit for providing lectures on health education and topical social issues.

The assistance of these persons and organisations is appreciated.

In addition the successful accomplishment of the Dental Health Service could not occur without the loyal and dedicated service of the personnel of the Branch. To these members I record my personal thanks.

NURSING ADMINISTRATION SECTION



Miss E.L. Bohan,
I.S.O.F.C.N.A., D.N.A.,
Principal Director of Nursing

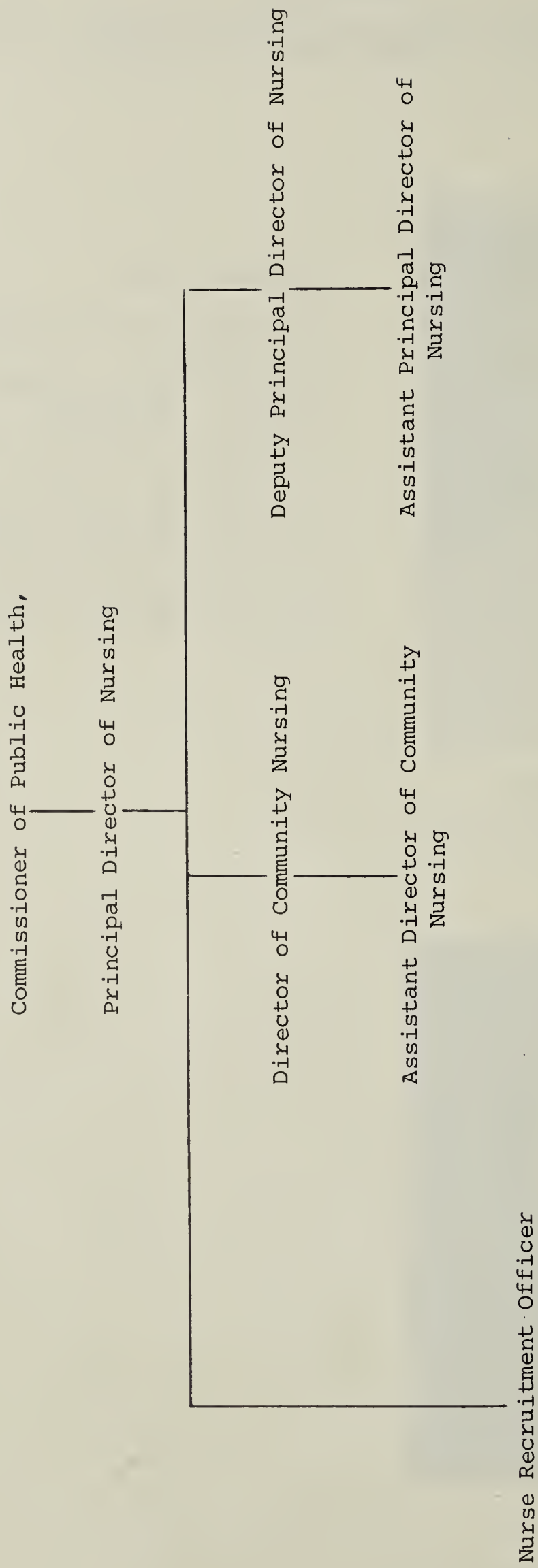
SENIOR STAFF

Principal Director of Nursing: Miss
E.L. Bohan
Deputy Principal Director of Nursing:
Miss C.J. MacDonald
Director of Community Nursing: Miss
P.M. Reid
Assistant Principal Director of
Nursing: Miss M.R. Squire
Assistant Director of Community
Nursing: Mrs. P. Baskin
Nurse Recruitment Officer: Mrs. J.
Clark



Miss P.M. Reid
F.C.N.A.
Director of Community Nursing

NURSING ADMINISTRATION SECTION - ORGANIZATION CHART



NURSING ADMINISTRATION SECTION

1. NURSING SERVICE

Apart from the usual problems of recruiting and maintaining staff in hospitals and nursing posts throughout the State, there has been some progress in continuing education of staff in country hospitals through a happy union of the Western Australian State Committee, College of Nursing, Australia, and the Margaret E Beard Memorial Project of this Department. As well the occupational health of nurses and other hospital workers was aired during the Combined Conference of Nursing & Hospital Administrators in September 1980. On this subject Senior Departmental Physiotherapist Mrs. C. Diamond has been very helpful and enthusiastic. Some hospitals, notably Bunbury and Mt. Henry, have initiated staff fitness programmes.

1.1 Emergency Nursing Service

This service has continued to be a valuable adjunct of the Nursing Service, and on occasions have been able to assist Community and Child Health Services in staffing remote localities.

No. at 1 January 1980	49
Appointments: 12 months	36
6 months	7
	<hr/>
	43
Appointments not completed	7
No. at 31/12/80	36

1.2 Appointments

Miss E.R. Taylor left Northam after 14 years, most of them as Director of Nursing, to become Director of Nursing of the new Wanneroo Hospital.

Miss J Bath - Deputy Director of Nursing, Mt Henry Hospital
Miss L White - Director of Nursing, Northam Regional Hospital
Miss J A Lewis - Matron, District Hospital, Narembeen
Mrs L Collopy, Matron, District Hospital, Laverton
Mrs J Middleton, Director of Nursing, Regional Hospital, Narrogin
Miss R Jones, Matron, District Hospital, Kellerberrin
Mr G Palmer, Director of Nursing, Port Hedland Regional Hospital
Mr A Diletti, Director of Nursing, Albany Regional Hospital
Mrs L Taylor, Matron Fitzroy Crossing Hospital
Miss E McKay, Matron, Halls Creek Hospital
Mrs I Herry, Director of Nursing, Regional Hospital, Carnarvon

These are not all of the new appointments, but show considerable movement of nursing administrators.

1.3 Retirements

Miss M Underwood, Deputy Principal, Western Australian School of Nursing, since its inauguration in 1975, and for many years before a senior Nurse Educator then Principal in the Government School of Nursing.

Miss F M Lovelock, Director of Nursing, Regional Hospital, Albany, after some 25 years service in Departmental hospitals, mostly in senior appointments.

Mrs E Digwood, Clinical Instructor, Narrogin Regional Hospital after some 20 years service in Departmental hospitals.

Sister M Alphonsus Daly, MBE, FCNA of the Order of St John of God, died on 8 August 1980, after a long and notable career dedicated to the care of the aborigines in the Derby Leprosarium.

2. NURSE EDUCATION

2.1 Scholarships for post-basic courses in 1981-82 were awarded to:-

Miss H Furniss (C & CHS, Pilbara)
Miss M Bayley (C & CHS)
Mrs E Anderson (RPH)
Mrs J Raxter (RPH)
Mrs M Kuerschner (Fremantle Hospital)
Mrs H Newnham (KEMH)
Mrs M Sundstrom (KEMH)
Mrs M Nelson (WASON)
Miss L Gray (WASON)
Miss B Jones (SCGH)

2.2 Helen Bailey Scholarship 1981

Awarded to Mrs M Hubery, Director of Nursing, Mt Henry Hospital, who will attend the International Conference in Gerontology in Hamburg, Germany, and visit appropriate centres in Scandinavia and Great Britain. Her interest is in community involvement in the care of the aged and handicapped, and she hopes for an exchange of ideas which will ultimately benefit Western Australia.

2.3 Margaret E Beard Memorial Project

As previously, this Project has been a means of promoting nursing seminars in the Kimberley, Pilbara and the south-west.

2.4 Theatre Inservice Courses

In an effort to overcome the shortage of experienced Theatre Sisters in regional and district hospitals, the short inservice course at Osborne Park Hospital was continued in 1980.

3. HOSPITAL INSPECTIONS

Departmental	41
Country Board	37
Private Hospitals and Nursing Homes	183
	<hr/>
	261

3.1 Plans of Nursing Homes

30 sets of plans were examined and reported on. Of these, six were for proposed new nursing homes; and the remainder for extensions for remodelling of existing buildings.

3.2 Nursing Homes closed

Lucknow (22 beds)

Hillroyd (50 children beds and cots) - closed when the Sir David Brand Centre opened on Bradford Road, Coolbinia.

4. DOMICILIARY MIDWIFERY

61 home deliveries were notified, eight of which were in country areas. The premises were inspected and reported on.

5. COMMUNITY AND CHILD HEALTH NURSING

Miss M Reid, Director of Community Nursing, has prepared a separate report.

6. CONCLUSION

In maintaining a service which brings health care to people in all parts of Western Australia, recognition and appreciation must be extended to Registered Nurses, Registered Nursing Aides and Nursing Assistants.

COMMUNITY NURSING SERVICE

STAFFING 31ST DECEMBER 1980

Chest & Tuberculosis Services:

Visiting Nurses	14
-----------------	-----	-----	-----	-----	-----	-----	-----	-----	----

Child Health Section:

Child Health Nurses	137
---------------------	-----	-----	-----	-----	-----	-----	-----	-----	-----

Community Health Section:

Field Nurses	148
--------------	-----	-----	-----	-----	-----	-----	-----	-----	-----

Field Nurse Aides	10
-------------------	-----	-----	-----	-----	-----	-----	-----	-----	----

Health Workers	48
----------------	-----	-----	-----	-----	-----	-----	-----	-----	----

Kimberley Public Health Region:

Child Health Nurses	2
---------------------	-----	-----	-----	-----	-----	-----	-----	-----	---

Field Nurses	30
--------------	-----	-----	-----	-----	-----	-----	-----	-----	----

Field Nurse Aides	1
-------------------	-----	-----	-----	-----	-----	-----	-----	-----	---

Health Workers	22
----------------	-----	-----	-----	-----	-----	-----	-----	-----	----

School Health Nurses	1.5
----------------------	-----	-----	-----	-----	-----	-----	-----	-----	-----

Miscellaneous	2
---------------	-----	-----	-----	-----	-----	-----	-----	-----	---

Occupational Health:

Occupational Health Nurses	3
----------------------------	-----	-----	-----	-----	-----	-----	-----	-----	---

Special Treatment Clinic Nurses	6
---------------------------------	-----	-----	-----	-----	-----	-----	-----	-----	---

School Health Nurses	128
----------------------	-----	-----	-----	-----	-----	-----	-----	-----	-----

School Health Nurse Aides	4
---------------------------	-----	-----	-----	-----	-----	-----	-----	-----	---

Major re-organisation occurred in the Community Nursing Service in August when the Kimberley based nurses were brought into the regionalisation of the Kimberley. The new medical and administrative positions for the region had been filled earlier in the year, however approval for the creation of the new senior nursing positions did not come through until several months later. The new positions are Regional Nursing Administrator and Deputy R.N.A.

The objective behind regionalisation was to transfer increased authority to the area and hence enable a higher level of decision making to be practiced close to the delivery of service.

Prior to this re-organisation discussion had taken place among senior nurses in Perth in order to clarify their respective roles and contribution in relation to the changes. Subsequently they have given support and co-operation when the occasion has demanded.

The Kimberley was particularly disadvantaged when due to economic restraints, they were not able to replace the staff who resigned towards the end of the year. In the far North the majority of the nurses are from inter-State or overseas and it is common for them to decide to continue with us "until the next build-up season" and then resign in time to be home for Christmas. Not being able to replace these nurses meant the outposts were grossly depleted of nurses and that an alarming workload was placed on the remainder.

Despite these problems some worthwhile administrative changes were instigated. These include modifications to the ordering and distribution of stores with a view to controlling cost and avoiding unnecessary expenditure; and some changes were made in the recording systems to improve performance and statistical research. Certain work programmes were co-ordinated to a greater extent to improve standards of care and health within the community.

It appears that the benefits it was hoped regionalisation would bring to the Kimberley are within reach providing adequate nurses can be secured.

Although there are many activities common to all Public Health nurses they can, for discussion purposes, be divided into three main groups - those who deal with specific diseases, those who deal with specific age groups, and the generalists who often have to deal with whatever the public present as they are frequently the only health professional available. During 1980 several hundred thousand services to the public were recorded by the various types of nurses and there were many less formal encounters which were not documented.

The specific diseases the individual nurses specialise in are asthma, chronic respiratory diseases, tuberculosis, multiple sclerosis, muscular dystrophy, leprosy, arthritis and rheumatism. Early attention, education and support while adjusting to the impact of such diseases on the patient and his family can make an enormous difference to the subsequent life style of affected persons as well as contributing to effective home management of the disease. This specialised care is greatly appreciated by the public who make good use of these nurses.

The disease nominated by the generalist nurses as having the most adverse affect on their clients is the intemperate consumption of alcohol. Its tragic consequences almost invariably include poor nutrition, trauma and child neglect if not abuse. In fact misuse of alcohol is a successful formula for creating a multi-problem family.

STYCAR screening was carried out in Child Health Centres on 107,085 children in the 0-5 year bracket, resulting in the following referrals: hearing 322, speech 202, vision 835.

In addition to this the provision of a child health service to children in Day Care Centres continued during the year. Of the 2,323 children examined 265 were referred for assessment following what was believed to be the initial detection of a problem.

The preparation for parenthood unit has presented programmes for expectant parents and mothers in the early post-natal period. The programmes of special interest and popularity are the "Father coached Preparation for Birth" and the Post-natal (keep fit) Classes which are run in conjunction with a physiotherapist.

In the pre-primary and primary schools 93,210 children were screened for vision and 85,073 were given hearing tests. 27,463 highschool students were screened for vision and 3,516 for hearing. The parents of 9,821 school children were notified regarding updating immunisation (a reduction of 55% on similar notifications in 1979). A total of 24,097 students were screened for scoliosis between years 6 and 10 resulting in 11 being

fitted with a spinal brace and 1 requiring spinal surgery.

Visiting nurses from the Tuberculosis Control Service gave 18,573 school children B.C.G. vaccinations.

Refugees have continued to arrive at the Graylands Migrant Centre throughout the year, 1,357 in all. Due to the heavy workload and large numbers arriving, a second sister, triple certificated, was allocated to the Centre. At the end of the year there were 184 children in the 0-5 age bracket. An excellent working relationship exists between the Graylands Field Nurse and the Visiting Nurse from Chest and T.B. Services who deals with the T.B. work. Without this harmony, and Sr. Telfer's streamlined system of health documentation, the situation could be quite chaotic and ineffectual, instead, it is a model of efficiency. 1,400 people transferred from Graylands during the year, most of them went to the East Perth/Leederville and Claremont area. Many of these need follow up for various reasons and with 14 less Field Nurses in the metropolitan area this has meant other activities have had to be reduced or discontinued.

The health of the Aboriginal people continues to show positive changes associated with the nursing and health worker activities. The updated Nutritional Anthropometry programme, now known as the 0-5 Programme, is being carried out State wide. Greater involvement of the Health Workers in monitoring 'well' babies has been achieved resulting in early detection of weight loss and early intervention. It is interesting to note that in the Kimberley all children who were singled out for specific monitoring by this method had already been identified by field staff as 'at risk' clients. (This was not linked with regionalisation).

Health workers have continued to make a valuable contribution to the aboriginal people's health. They have also continued to receive a considerable amount of education and specific training to prepare them for their day to day work.

The first Health Workers Award was handed down this year after a review and subsequent negotiations between the Miscellaneous Workers Union and the employer.

The Hospital Liaison unit (formerly Communication and Escort) continued to initiate and maintain communication between the hospitalised patient, his health care providers and the family back home. The objective being to minimise the cultural trauma and loneliness of the tribal aborigines, and hopefully to assist them to gain the maximum benefit from their hospitalisation. The nurses (2) in this unit have also acted as an information centre for miscellaneous health related enquiries, which amounted to 3,538 in 1980.

Cyclones disrupted communications and caused damage and health hazards in the Pilbara in 1980. Mt. Newman Mining carted water daily to the 'Twelve Mile' when the creek broke its bank and flooded the septic tanks and contaminated the underground water supply. This was much appreciated by the nurses and residents.

Field nurses and health workers recorded 243,195 units of service to aboriginal persons and 83,678 to non-aboriginal persons during the year. In addition to this the field nurses conducted numerous group programmes aimed at health promotion and covering the following: Weight Watchers,

Self Help and Motivation, Ante-Natal, Parenting, First Aid, Relaxation, Eating for Health, Amoebic Meningitis, Ear Health, The Disabled, Parasites, Keep Fit, Dental Hygiene, Aboriginal Pre-Pre-School, Safety, Childhood Aggression and Discipline, and Care of the Feet.

On a more limited scale nurses are involved in a Well Womens Clinic at Lockeridge (in association with a doctor). In one country town Field Nurses have had excellent results with patients suffering from enuresis. Self examination of the breast is another subject that is taught to individuals and groups either as a lone topic or woven in with other programmes.

Field nurses throughout the State have been heavily involved in immunisation programmes, i.e. the education, preparation and administration of same. In Meekatharra the picture show proprietor gives the immunisation programme a free 'ad.' which seems to have increased the local peoples awareness and participation. The Koondoola staff arranged and manned immunisation information desks in the Whitfords City, Warwick Grove and Greenwood shopping centres. Members of the public were able to discuss their immunisation and were given information on the importance of updating immunisation status, and how, where and when immunisation could be obtained.

In Conclusion

There exist a number of major problems and unmet needs which will not go away on their own accord and which are a cause of great concern to community nurses. The main ones are:

1. The budget problems of people in the more remote parts of the State who are on the pension or social security. Most employees in those places have some form of district allowance to offset the high cost of living. There are no geographical differences in pension and social security monies however, and many responsible people cannot manage. One has to bear in mind that very few of these people have a refrigerator and therefore have to buy food frequently which adds to the cost.
2. Even more serious is the increasingly early discharge from the teaching hospitals of patients who are not fit to cope without some assistance at home. It is accepted that the hospital rarely have any alternative course of action open to them. However, at the present time no agency provides the necessary follow up to ensure that these patients are not at risk.

People who live alone can find their electricity has been cut off and the perishables have decomposed while they were in hospital. If there is a motor car the battery may be flat, and so on. Being confronted with these predictable problems can be quite detrimental to recovery. Nurses have found that an early visit can often rectify many of these problems including ensuring the patient understands about his medications and that his dietary needs are being met. However, we do not have sufficient nurses to provide routine surveillance of these vulnerable convalescent patients.

3. An elderly person can find him/herself in a crisis situation which could have been avoided had there been a regular surveillance service which had intervened when the crisis was in the early stages of

development. It is often relatively simple things like a heavy cold and a vandalised telephone booth that prevents an elderly person with say chronic bronchitis or arthritis, from being able to buy his groceries, pay his bills or even call a doctor. It only takes a few minutes of a nurse's time in the early stages to prevent these problems from compounding. Regrettably we do not have sufficient nurses to be able to offer even those few minutes on a reliable basis.

In a similar vein and because of increasing pressure on priorities, the Field Nurses can no longer routinely visit the various boarding houses where many elderly people without close family ties live.

The above kinds of problems have a direct and detrimental effect on health and have lead to otherwise avoidable, recurring admissions to hospitals.

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT BRANCH

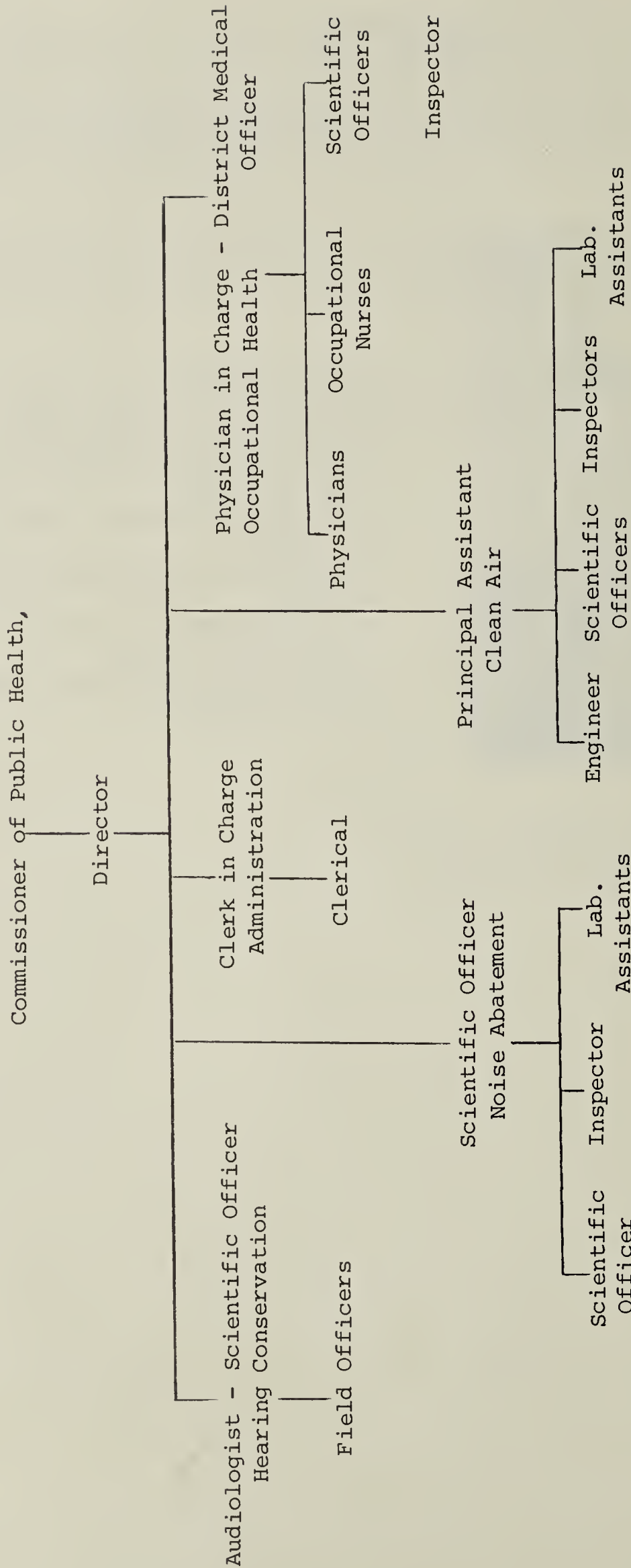


F. Heyworth,
M.B., Ch.B., L.M.S.S.A. (Lond.) M.R.C.P.,
F.R.A.C.P., D.I.H. (Apoth.), D.I.H.
(Conjoint).

SENIOR STAFF

Director: Dr. F. Heyworth
District Medical Officer: Dr. P.
Psaila-Savona
Principal Assistant, Clean Air: Mr.
R. Powell
Physician, Occupational Health: Dr.
K. Wan
Scientific Officer, Hearing Conserv-
ation: Ms. P. Gunn
Scientific Officer, Noise Abatement:
Mr. C. Roberts

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT - ORGANIZATION CHART



DIVISION OF OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT

OCCUPATIONAL HEALTH SECTION

GENERAL

Public concern regarding workplace health hazards and effects of chemicals has grown rapidly in 1980. Much of the branch's work involved answering requests for information on toxicity, prevention of exposure and appropriate handling of chemicals. Such requests have been overwhelming in number and often urgent in nature. Frequently the branch has filled the role of providing unbiased expert advice against a background of industrial disputes about health issues. The growth of these demands has strained the ability of the branch to maintain maximum routine evaluations in the field. The pursued policy of self-regulation and self-management of occupational health by industry where possible, aided by suitable assistance from the branch, may in the long-term alleviate this problem.

The Clean Air Act Amendments are nearer to becoming legislation. Much interest in lead-in-air measurements in the city occurred during the year. Fluoride in air studies have assumed a much greater prominence. Several notices to carry out work were issued by the Air Pollution Control Council as a result of complaints during the year. The Noise Abatement Act Amendments are nearer to becoming law and will open the way for the hearing conservation regulations. The Traffic Noise Committee completed its draft final report. A community study of blood lead levels in Northampton school children was completed and a report prepared for publication.

STAFF CHANGES

It is with deep regret that the death of Mr. R.E. Taylor in December is recorded. Mr. Taylor had been with the Clean Air Section since 1973 and at the time of his death was an Inspector under the Act.

Dr. J.G. Tees held the position of Physician in Occupational Health from January to July 1980.

Dr. K.C. Wan relinquished dialy sessions at the W.A. Meat Commission to become a full-time Physician in Occupational Health with the Branch on November 1st.

Mr. J.E. Overton was appointed Scientific Officer, Noise Abatement.

Miss D. Earnshaw commenced 14th January 1980 replacing Miss Kim Waters.

Miss C. Bowers commenced October 1980 replacing Mrs. M. Vickery.

MEDICAL EXAMINATION OF MINERS AND WORKERS IN DUSTY TRADES

In accordance with practice in previous years, radiological surveys have been conducted in co-operation with the Perth Chest Clinic.

As required by the Mines Regulation Act, 1964-74, 4030 men who entered the mining industry during 1980 were examined and, as required by the Mine Workers' Relief Act, 1932-40, 4927 miners were re-examined.

In the examinations under the Mine Workers' Relief Act, 148 miners were found to be suffering from silicosis and 4 from silico-asbestosis. No cases of asbestosis were identified. One was a new case of silicosis and this number expressed as a rate per 10,000 examinations, is consistent with the lower incidence rates observed in recent years (Fig.1). No new cases of asbestosis or silico-asbestosis were found.

For the seventh successive year there were no newly diagnosed cases of tuberculosis in miners.

FIGURE 1.

Year	Total No. of examinations	Cases of Silicosis	Incidence of new cases of silicosis	Rate per 10,000 examinations (silicosis)
1925-29	13,800	-	847	614
1930-34	19,600	-	380	194
1935-39	34,100	-	111	33
1940-44	29,000	-	238	82
1945-49	26,000	-	293	113
1950-54	29,400	-	274	93
1955-59	30,200	-	259	85
1960-64	36,377	-	409	112
1965-69	36,477	-	196	53
1970-74	24,122	1,704	119	49
1975	8,696	302	35	40
1976	5,788	291	20	35
1977	7,414	242	18	24
1978	3,789	197	17	44
1979	3,712	197	10	27
1980	4,927	148	1	2

The asbestosis, silicosis and mesothelioma registers have continued. It is emphasized that, although it is realised that the registers may be incomplete, and that they can only include known cases, they are nevertheless useful indicators of the annual position. It must also be observed that the figures given in the Registers are not only the cases diagnosed under the above quoted legislation but come from various sources such as the Pneumoconiosis Medical Board established under the Workers' Compensation Act.

REGISTERS

Year of Diagnosis	Mesothelioma	Asbestosis	Silicosis
Unknown	5	-	-
Pre 1973	14	} 78	-
1974	3		-
1975	9		-
1976	5		-
1977	8		-
1978	11	11	29
1979	5	8	24
1980	10	16	16
TOTAL	70	113	69

46 cases of mesothelioma and 90 of asbestosis are known to have been associated with prior occupational exposure to blue asbestos at Wittenoom.

DISTRICT MEDICAL OFFICER'S REPORT

Attendances at the Police Department Surgery in 1980 totalled 7,277. Compared with 1979 for the period February-December, there has been about 10% increase in attendance.

	Year 1980 Jan.-Dec.	Year 1979 Feb.-Dec.	Year 1980 Feb.-Dec.
Medical Consultations	6,820	5,570	6,338
Pre-employment Medical examinations	249	371	233
Periodic Medical examinations	208	170	189
Total Attendances	7,277	6,111	6,760

(No statistics are available for January 1979)

OTHER MEDICAL EXAMINATIONS

At the request of the Road Traffic Authority, 60 persons were examined in connection with applications for, or renewals of, special licences, eg. bus drivers and driving instructors. In addition, 50 medical examinations for licensing were carried out following referral from court, medical practitioners and from applicants themselves.

ASSESSMENT OF FITNESS TO DRIVE

From February to December 899 medical assessments have been made. As envisaged these assessments have assumed great significance with the introduction in February 1980 of a new procedure. The number of assessments processed is much more than was originally anticipated. After a few teething troubles, the procedure seems to be working well. The Appeals mechanism originally recommended by the Committee appointed to consider Medical Fitness in relation to Driving of Motor Vehicles has not yet been established. The need to amend legislation to take into consideration this mechanism now becomes pressing.

The permanent Medical Advisory Committee on Road Traffic Injuries, established in 1979 under the Chairmanship of Dr. K.J.M. Carruthers, has met on a regular basis.

ABATTOIR OCCUPATIONAL HEALTH

The Western Australian Meat Commission (W.A.M.C.) operates an abattoir at Robb Jetty and has another abattoir in Midland which ceased operations in May 1979. Between 450 to 700 workers are employed at the Robb Jetty abattoir which is engaged in the slaughter of sheep, goats and cattle, processing of meat products and operation of cold stores.

The in-plant medical facilities at the Robb Jetty abattoir established in January 1979 are managed by a full time Occupational Health Nursing Sister, and, until October 31st 1980, by Dr. K.C. Wan in the mornings.

The Occupational Health Branch has always provided a consulting service to the Meat Commission and will continue to do so. Officers from the Branch will visit the abattoirs from time to time.

A Safety Committee was formed in March to co-ordinate occupational health and safety activities which included health surveillance for occupational and zoonotic diseases, hearing conservation, eye protection measures, monitoring of heat stress, health education and accident prevention.

There were 16,033 attendances for first aid and medical attention which are 3,375 or 26.7% more than in 1979. Medical examinations were carried out on 143 workers for health certification according to regulations for export of meat to West Germany. Serological investigations were carried out on 13 men who had symptoms or signs of illness. The results did not indicate any cases of active brucellosis, leptospirosis, Q fever or melioidosis.

There were 3,828 injuries of which 412 were Workers' Compensation cases comprising 10.8%. Of the 412 Workers' Compensation cases, time lost from work occurred in 355 or 86% of the cases. The most common injuries were to the hands and fingers which accounted for 2,204 or 57.6% of injuries.

There has been a reduction in lost time injuries in 1980 compared to 1979. There were 216 lost time injuries compared with 240 in 1979 and the frequency rate of 358.15 injuries per million man hours worked was lower than that of 447.02 in 1979. The percentage of cases on Workers' Compensation in 1980 was lower than the figure in 1979 by 3.2 and the percentage

of lost time Workers' Compensation cases was also lower by 7.0.

OCCUPATIONAL HYGIENE

HAZARD EVALUATIONS

Hazard evaluations were performed concerning thousands of different industrial and consumer materials. These evaluations included exposure tests, biological sampling, toxicity investigation, and inspections. Major efforts involved lead, asbestos, silica, fibreglass, P.C.B's, solvents, pesticides, formaldehyde, mercury, sulfur dioxide, and isocyanates. Others included vanadium, cadmium, beryllium, carbon monoxide, ammonia, graphite, mineral dust, styrene, chrome, tar, hydrogen sulfide, arsenic, oil mist, talc, sodium hydroxide, nitroglycerin, and various carcinogenic substances.

PESTICIDES

Over one man-year was required to handle pesticide problems, operator licensing, complaints, oil testing, educational classes and general pesticide queries. Educational activities included organisation of the Mt. Lawley Technical pesticides course and frequent country seminars on pesticides. Over 120 examinations were held for pesticide operators' licences.

Special tests were done to measure 2,4-D, 2,4,5-T and other pesticides in air, blood, and urine.

SPECIAL PROJECTS

Major efforts were aimed at silica exposures in abrasive blasting, lead exposure of battery workers, formaldehyde levels from home insulation, and asbestos exposures during limpet removal.

Efforts were co-ordinated with the Mines Department in the development of gas sampling procedures and in identifying toxic materials in mines. Considerable time was devoted to developing a pesticide safety manual for the Forestry Department. First aid and health planning information was provided to North West Shelf Centres.

EDUCATIONAL ACTIVITIES

Aside from directing the Mt. Lawley Technical pesticides course, approximately 45 lectures and seminars were given on various occupational health topics including dust monitoring, nursing, pesticides and industrial health.

PROFESSIONAL CONSULTATION AND REVIEW

Close co-operation was maintained with various governmental bodies in joint attacks on potential occupational health problems. Agencies included the Commonwealth Departments of Health, Army, Air Force, Environment, Transportation, Telecom, Australian Post, and state departments of Mines, Labour and Industries, Police, Fire Brigade, Forests, Agriculture, Main Roads, Education and Westrail.

Committee meetings, consultation, and reviews were maintained with the National Health and Medical Research Council. Proposed Australian Standards were reviewed on hazardous chemicals, chemical spills and identification, and respiratory protection.

ENVIRONMENTAL CONCERNS AND PUBLIC QUERIES

Many public queries were answered relating to home insulation materials, hair dyes, hair driers, consumer items, pesticides, and potential carcinogens. Environmental measurements were made in homes, public buildings, and workplaces.

OCCUPATIONAL HEALTH NURSING

Staff comprises of 3 trained nurses, 2 stationed in Perth and 1 at Kwinana Community Health Centre. As in previous years chest x-ray film surveys have been carried out in co-operation with the Perth Chest Clinic (Mobile Units). Industrial chest x-ray films are read by the Perth Chest Clinic Doctor and Occupational Health Physician.

Industrial	749
James Hardie	190
M.T.T.	300 (micro)
Clackline Refractory	24
Sandblasters	141
Asbestos Workers	170

Industrial films from other sources such as sandblasters, asbestos workers and foundry workers report to Perth Chest Clinic, Fremantle Chest Clinic or the nearest regional hospital.

Visits by 2 sisters:

Number of visits	664
Treatments	224
Urinalysis Clinic	251
Respiratory Function Tests	154
Eye Tests	40
Audiograms	431
Medical assessments	12

Visits by Sr. Woodland not included as she is attached to the Industrial Hygiene section.

NURSING EDUCATION

Students from the larger training hospitals report to this Department for instruction and guidelines for a future career in Occupational Health Nursing. In co-operation with Nursing Education, nurses wishing to learn more of this branch of Nursing are sent for a period of up to 10 days to centres that have trained nurses on site. The larger firms are extremely co-operative and allow students to participate in general treatments and programmes.

Discussions with Department of Nursing, WAIT re establishing full-time Occupational Health course at WAIT. Some progress has been made, but it is difficult for nurses to take 12 months or 2 years leave from their present positions. Economically it is not practical for them or the employer.

The trend now is to consider a "day release" course with external studies. However, these discussions are still continuing and questionnaires have been sent to nurses in the Occupational Health field.

KINETICS/ERGONOMICS

The role of this sub-section continues to be essentially one of work situation assessment and appropriate education of the public in the principles and application of ergonomics. There has been a significant increase in public interest in the work/health relationships of individuals using Work Processors, Computer Terminals and Micro fiches units. Implementing this branch's policy of "prevention", assessment of the postures adopted by trainee office-workers was undertaken to establish when sub-optimum work postures were learnt. This assessment was followed by a series of lectures to staff and students of some of the commercial colleges. A booklet on Visual Display Units has been prepared to assist office workers.

Ergonomics evaluation and advice on the appropriate prophylactic and remedial action, in relation to specific employee groups, has been given to 8 industries in the private sector, 6 W.A. government or local government organisations and 6 commonwealth or commission organisations. Numerous individuals have also received verbal or written information on the application of ergonomic principles.

A pre-employment "back examination" questionnaire has been prepared, circulated and analysed in conjunction with A.N.Z.O.M.

The following pamphlets were created for use by the staff of the Occupational Health Section:

- Fibreglass
- Visual Display Units
- 2,4,5-T
- Polychlorinated Biphenyls
- Urea-Formaldehyde Insulation.

NOISE ABATEMENT SECTION

ENVIRONMENTAL NOISE

Community Noise

The existing service of community noise investigation has continued with continuing assistance and technical advice being provided to local authorities.

There has been a marked increase in the number of complaints received regarding noise nuisance from rural areas which has required Departmental

officers to travel further afield.

Community noise and vibration investigations included the following noise sources:

Air conditioners, quarries, pool pumps, compressors, roosters, factories, amplified music, power boats, trains, power tools, traffic, sandblasting, restaurants, public address systems, a bus depot, dogs and commercial premises.

OFF ROAD VEHICLES

The Section is actively involved in measurements and discussions with the Off Road Vehicle Committee, the Department of Conservation and Environment and the Industrial Lands Development Authority to relocate the Coastal Park Moto cross club. Officers of this Section have studied reports prepared by a consultant based on a theoretical prediction of noise likely to be propagated from the proposed site of the Tiger Go-Kart Club. This international race track sited in the Cockburn area has been completed and preliminary indications are that the closest residential areas will not be disturbed by the clubs activities. In addition condition for permissible noise emission of individual go-karts has been included in a lease with the Tiger Go-Kart Club.

TRAFFIC NOISE

Two drafts of the report to the Minister for Health concerning traffic noise were not acceptable to the members of the Inter-departmental Committee on Traffic Noise.

A third draft has been prepared including comments submitted by members and has been submitted to the Minister for Health on behalf of the Committee.

Several objective measurements of traffic noise around the Metropolitan area have been conducted in the last six months.

RAILWAY SYSTEMS

A comprehensive series of measurements of freight train noise in the Kwinana town site area have been completed and referred to the Department for Town Planning. Recommendations were made regarding suitable buffer zones adjacent to the railroad in order to reduce the noise impact of freight trains.

ENVIRONMENTAL NOISE IMPACT STATEMENTS

Departmental officers studied comprehensive reports prepared by an acoustics consultant on the prediction of noise impact on residential areas from -

- a) the proposed Borden Chemical Plant, Bunbury, and
- b) Moto-cross activities at the Mt Brown Site, Cockburn.

Consideration was also given to the environmental impact of noise from tree chipping machines and open air concerts in the drafting of

conditions placed on exemptions from the Noise Abatement Act.

NOISE ABATEMENT - LABORATORY CALIBRATION SERVICES

The noise laboratory calibrated sixteen sound level meters and seventeen audiometers during the year. There is continual development of Computer Software for noise analysis and equipment calibrations. Other laboratory activities have included: frequency and statistical analysis of noise and maintenance and calibration of other noise laboratory equipment.

NOISE ABATEMENT - EDUCATION

Lectures have been given on request in seminars, conferences and training courses. An assessment course was held for qualified Health Surveyors employed by local authorities to determine their suitability to be appointed as noise inspectors.

Daily phone advice on noise abatement matters is given to the public, local government authorities and other Government departments.

NOISE ABATEMENT - STATUTORY DUTIES

Various reports mainly concerning the control of traffic noise and community noise have been prepared for the Noise Abatement Advisory Committee and the Noise and Vibration Control Council by officers of the Noise Abatement Section.

The "Noise Planning and Development" Document has been recommended to the Minister of Health and has been submitted to interested parties dealing with planning, local government and the environment for their comments over a six months period.

The Noise Abatement (Neighbourhood Annoyance) regulations were gazetted on the 29th August and the Noise and Vibration Control Council has approved the "Requirements for the Measurement of Noise for the Purposes of the Noise Abatement Act". This code of practice forms a supplement to the Neighbourhood Annoyance Regulations.

Where local authorities do not possess trained personnel or equipment to measure, evaluate and control community noise, the Noise Abatement Section has provided instruction designed to assist practising Health Surveyors in fulfilling their obligations under the Act.

The Amendment Bill for the Act which includes amongst others

- (a) provisions to implement hearing conservation in industry;
- (b) measures to control noise from single events;
- (c) upgraded penalties; and
- (d) the involvement of planning authorities in the consideration of noise standards in their planning, has had a second reading in Parliament.

NOISE ABATEMENT - HEARING CONSERVATION

GENERAL

The Team consists of Scientific Officer, an Audiologist, an Instructor and a Clerk/Driver. During 1980 the Team continued to promote hearing conservation in industry by measuring and evaluating noise exposures, advising on noise reduction principles, motivating management and employees to conduct hearing conservation programmes and collecting information on the effects of noise upon the health of the workforce.

NOISE SURVEYS

Twenty-five preliminary noise surveys and 42 full noise exposure surveys with detailed reports were carried out during the year. Nine of the latter were for government establishments (technical schools, hospital, university, local authority) and the rest private companies. Most of the surveys were conducted in response to requests from the managements of the companies or organisations themselves. Some of these had been prompted by Eastern States head offices and others by complaints from their employees. Four surveys resulted from requests from Factory Inspectors and one from a Union. As well as conducting full noise hazard assessment surveys from small companies (less than 50 employees), assistance has been given to larger companies who have their own simple sound monitoring equipment, but need more detailed measurements such as frequency analysis to enable them to take noise reduction measures. Assistance was given with the training of health surveyors and noise technicians at two WAIT-AID courses.

AUDIOLOGY

A total of 560 audiograms were taken during the year. Twenty-three of these were of individuals who were concerned that noise had affected their hearing ability and the rest were part of company or organisation hearing conservation programmes. Most tests were conducted in the team's audiometry van whilst it was stationed in Carlisle. During the year the van was moved for short periods of time to Midland, Kelmscott, and Perth City to cater for various groups.

Assistance was given with the technological training of audiometric technicians at three WAIT-AID courses, one of which was held in Kalgoorlie.

The proposal for computerisation of audiometric data was approved and the computer terminal and printer have been obtained. There has been some delay with the link-up to the main computer, but the system is expected to be operational in the near future. It will then be possible to perform epidemiology and demographic analysis, as well as rapid record retrieval.

Advice and assistance has been given to the Lions organisation who are setting up an audiometric screening service for the general public.

EDUCATION

The team's education programme has evolved into a three part programme:

- i) Educating management and employees
- ii) Educating apprentices in all trades

iii) Educating young adults prior to joining the workforce.

The first part involved the team's participation in exhibitions and seminars with follow-up talks by the Instructor with groups of employees (shop floor to middle management) from 16 companies. Talks have also been given to service organisations, trade union organisers and the Foundry Man's Association. A pamphlet on hearing conservation suitable for distribution to workers has been prepared and printed.

The second part consisted of liaison with the Technical Education Department with the aim of arranging for trade apprentices to receive education about hearing conservation. To provide information for teaching staff development, noise surveys and audiograms were carried out at three technical schools.

Thirdly, participation in the C.A.T.S. (Children's Activity - Time Society) programme 'Decibel Danger' has involved the Instructor in talks to high school students, aged 13-15 years, about the dangers of excessive noise. Twelve high schools were visited during second and third terms and the programme is being continued in 1981.

DRAFT HEARING CONSERVATION REGULATIONS

The Team has been arranging the printing and distribution of the document "Proposals for Hearing Conservation in Industry", to interested parties who have made written requests. Many telephone enquiries received relate to the contents and expected introduction date of the Regulations. (These still await the amendments to the Noise Abatement Act, presently before Parliament).

ENTERTAINMENT NOISE

At the request of the Noise Abatement Advisory Committee, a survey of noise exposure levels experienced at Perth hotels and discotheques was carried out. Under the supervision of the Scientific Officer, two 5th year medical students surveyed 12 establishments. Noise levels were also taken at a big 'pop' concert. The results of these measurements are being used in the Team's educational sessions to make workers and school children aware that hearing conservation is needed both at work and play.

CLEAN AIR SECTION

The activities of the Section are described under the following headings:

- A. MONITORING OF AIR POLLUTANTS
- B. SPECIAL INVESTIGATIONS AND TESTING
- C. ADVISING ON AIR POLLUTION CONTROL AND EDUCATION
- D. COMPLAINTS AND STATUTORY DUTIES

A. MONITORING OF AIR POLLUTANTS

1. DUST MONITORING

The Central Electricity Research Laboratories directional dust gauge (CERL guage) and the standard New South Wales glass deposit gauge are used in W.A.

Perth Area

At the end of 1980 23 CERL gauges were sited in the metropolitan area as follows:

City Beach	Perth Airport	Kwinana (4)
East Perth	Welshpool	Munster (4)
Lathlain Park	Kewdale	Hazelmere
Rivervale	Maddington (2)	Viveash (2)
Gosnells (2)		

For results see Appendix A.

The results for deposit gauges situated at City Beach, East Perth, Perth Airport and Welshpool are shown in Appendix B.

Port Hedland

Six gauges were maintained in Port Hedland during 1980 and were located as follows:

<u>Gauge No.</u>	<u>Location</u>
1	Anderson Street, Port Hedland
2	Howe Street, near Hospital
3	Spinifix Hill, near Shire Office
4	Cooke Point
5	Leslie Salt, Redhill
6	Stanley Street, South Hedland

The dust samples from each gauge were collected by officers of the Shire of Port Hedland and processed in the Section's laboratory in Perth. For results see Appendix C.

Cape Lambert/Dampier/Karratha

Eight CERL dust gauges were maintained in the area during 1980 and located as follows:

<u>Gauge No.</u>	<u>Location</u>
1	Port area, Port Sampson
2	Immediately south of Cape
3	North of Wickham
4	South of Wickham
5	Parker Point, Dampier
6	Bowling Club, Dampier
7	Karratha Airport
8	Fire Station, Karratha

The Health Surveyor of the Shire of Roebourne has continued to collect the dust samples and maintain the gauges in the area and forward the samples to Perth for processing. For results see Appendix D.

Kalgoorlie

Eighteen CERL gauges are processed for the Goldfields Dust Abatement Committee and located as follows:

<u>Gauge No.</u>	<u>Location</u>
1	Trafalgar Townsite
2	Lionel Street
3	Mafeking Street
5	Lane Street
6	Chesapeake Street, Boulder
7	Burt Street
9	Maritana Street
10	North Kalgoorlie Primary School
11	Killarney Street, Lamington
12	Piccadilly Street
14	Gt. Eastern Highway, West Kalgoorlie
15	Boulder Rifle Range
16	Kambalda Road, Mt. Hunt
17	Chaffers Slime Dump
18	Brown Hill
19	Bulong Road, East Kalgoorlie
20	West Kalgoorlie
21	East of Trafalgar

For results see Appendix E.

Two gauges at Chatham Street and Bromhill Road have been removed and one gauge relocated in Boulder Road, and the gauge at the Mines Department retained.

<u>Gauge No.</u>	<u>Location</u>
1	27 Boulder Road, Kalgoorlie
3	Mines Department, Brookman Street, Kalgoorlie

For results see Appendix F.

2. PARTICULATE MONITORING

The United States Environmental Protection Authority high volume sampler is used in W.A.

Perth City

Two samplers are sited in the city, one in the inner city on the corner of William and Murray Street, and th other at the Bureau of Meteorology. The collected particulates are analysed for lead at the Government Chemical Laboratories.

For results see Appendices G & H.

Bunbury

A high volume sampler was maintained at the Bunbury Port Authority near the harbour and serviced by the Health Surveyors of the City of Bunbury. For results see Appendix I.

Port Hedland

The Department is grateful to officers of Mt. Newman Mining Company who maintained three high volume samplers in Port Hedland during 1980. The samplers are located as follows and the results shown in Appendix J.

<u>Sampler No.</u>	<u>Location</u>
1	Howe Street, near Hospital
2	Swimming pool, near Shire Offices
3	Stanley Street, South Hedland

3. SULPHUR DIOXIDE AND SMOKE

Perth Area

Monitoring of sulphur dioxide and smoke has continued, but only with the help of residents in the many suburbs who have continued to assist the Clean Air Section by accommodating and operating these samplers in their homes. The Department of Health and Medical Services wishes to thank them all for their most valuable help. For results see Appendices K & L.

Kwinana

A continuous gas chromatography sulphur dioxide monitor was maintained in the Kwinana area for the Kwinana Air Modelling Study and located at Tomislav Way, Wattleup. For results see Appendix M.

Kalgoorlie

Western Mining Corporation staff have continued to maintain the section's monitors in the Kalgoorlie and Boulder area. For results see Appendix N.

4. OXIDES OF NITROGEN

The sampling site at 57 Murray Street, Perth has continued to be operated on a 24 hour basis during 1980. For results see Appendix O.

5. CARBON MONOXIDE

Monitoring for carbon monoxide has continued at 57 Murray Street, Perth and at the corner of William and Murray Street, Perth. For results see Appendices P and Q.

6. OZONE

Ozone was monitored at 57 Murray Street, Perth and the results shown in Appendix R.

7. LEAD

Lead was monitored at the corner of William and Murray Streets, Perth and at the Bureau of Meteorology, and the results are shown in Appendices G and H.

B. SPECIAL INVESTIGATIONS AND TESTING

1. SPECIAL INVESTIGATIONS AND TESTING

Superphosphate Works

Five superphosphate manufacturing plants were tested during the year, the Bassendean works did not operate during the year. For results see Appendix S.

Vineyard Monitoring

An intensive monitoring programme was again performed near a brickworks, during the grape vine growing season commencing in mid-September 1979, and continuing into April 1980. Although the concentration of fluoride measured in the air was lower when compared to the previous season, damage was again sustained indicating that the concentration was still too high to be compatible with normal healthy plant growth. A frequency of concentrations of fluoride measured in air during September 1979 till April 1980 is shown in Appendix T.

The highest hourly average fluoride concentrations are shown in Appendix U.

The assistance given by the officers of the Department of Agriculture for leaf sampling and the analysis of the leaves by the Government Chemical Laboratories is gratefully acknowledged. Results necessitate further monitoring during the 1980/81 growing season.

Fluoride emissions were measured from several brickworks to evaluate scrubber efficiencies.

2. KWINANA AIR MODELLING STUDY

The Clean Air Section continued to support the Technical aspects of the study by maintaining the base stations at Wattleup and Naval Base and supplying computer facilities.

3. 2,4-D MONITORING IN GERALDTON

Officers of the Section continued to support the Agriculture Department with monitoring instrumentation and general assistance.

4. SOURCE TESTING

In the latter part of this year a stack testing team was formed. Testing for particulate emissions was carried out at two works, a cement works at South Coogee, and a vanadium plant at Wundowie.

Type of Works	Location	Emission (average) g/m ³ of exhaust gas (dry at 0 C & 760mm)
Vanadium	Wundowie	13.3
Cement	South Coogee	0.175

The vanadium plant was subsequently shut down and a high efficiency dust collector installed at the source.

5. MISCELLANEOUS

The Clean Air Section continued to support other Government Departments, Local Authorities, and private companies when called on during the year.

C. ADVISING ON AIR POLLUTION AND EDUCATION

As in past years, numerous enquiries were received by the Clean Air Section from students and the public for information on air pollution and allied matters. Lectures were given to various professional organisations and tertiary educational institutions.

D. COMPLAINTS AND STATUTORY DUTIES

During the year similar numbers of complaints received in past years were again dealt with. The cause of the complaints varied from dust to odours, originating from a wide range of industries and commercial premises.

Routine inspections and special inspections of industrial premises were carried out by the Section's officers as required by the Scientific Advisory Committee and the Air Pollution Control Council.

All meetings of the Scientific Advisory Committee and the Air Pollution

Control Council, or special sub-committee meetings, were attended by the Principal Assistant or Senior officers of the Section.

Appendix A

DUST TESTING PROGRAMME - PERTH METROPOLITAN AREA, 1980

Mean Total Dirtiness for the 12 Months Period January - December 1980.

GAUGE	TOTAL DIRTINESS
City Beach	1.5
East Perth	1.9
Lathlain Park	1.7
Rivervale	2.8
Perth Airport	1.5
Maddington 1	11.6
Maddington 2	3.8
Gosnells 2	2.2
Gosnells 3	3.7
Hazelmere	1.9
Welshpool 2	2.7
Kewdale 1	4.7
Viveash 1	2.4**
Viveash 2	1.9**
Munster 1	2.6*
Munster 2	2.2
Munster 3	3.6***
Munster 4	4.3
Kwinana 2	3.5
Kwinana 3	3.3
Kwinana 4	2.1
Kwinana 5	2.5

* 3 months only

** 2 months only

*** 3 months only

Appendix B

DEPOSIT GAUGES - 1980

Deposition (milligrams per square metre per day)

SAMPLING POINT	TOTAL INSOLUBLES	TOTAL INORGANIC
Belmont	28	18
City Beach	30	17
East Perth	54	39
Welshpool	45	29

Appendix C

DUST TESTING PROGRAMME - PORT HEDLAND 1980

Mean total dirtiness and mean per cent iron ore in total dust from dust gauges for the twelve months period January - December 1980

GAUGE NO.	LOCATION	TOTAL DIRTINESS	% IRON ORE
1	Anderson Street, Port Hedland	23.4	41
2	Howe Street, near Hospital, Port Hedland	16.2	37
3	Spinifex Hill, near Shire Office	5.7	11
4	Cooke Point, Port Hedland	2.2	10
5	Leslie Salt, Redhill	23.2	11
6	Stanley Street, South Hedland	2.9	5

Appendix D

DUST TESTING PROGRAMME - CAPE LAMBERT/DAMPIER/KARRATHA

Mean total dirtiness and mean per cent iron ore in total dust from dust gauge for the twelve months period January - December 1980

GAUGE	TOTAL DIRTINESS	% IRON ORE
1	2.9	
2	2.3	
3	1.6	
4	1.6	
5	10.2	19
6	6.3	40
7	5.4	6
8	3.4	10

Gauges 1, 2, 3, 4	Cape Lambert
5, 6	Dampier
7, 8	Karratha

Appendix E

DUST TESTING PROGRAMME - KALGOORLIE, 1980

Mean total dirtiness for the twelve months period,
January - December, 1980

GAUGE NO	TOTAL DIRTINESS
1	10.5
2	2.3
3	8.9
5	3.1
6	2.0
7	1.9
9	3.3
10	2.7
11	1.5
12	2.4
14	2.4
15	1.0
16	0.9
17	45.1
18	2.4
19	1.5
20	1.3
21	5.6

Appendix F

DUST TESTING PROGRAMME - KALGOORLIE MINES DEPARTMENT, 1980

Mean total dirtiness for the twelve months period,
January - December, 1980

GAUGE NO.	TOTAL DIRTINESS
1	2.8
3	2.3

Appendix G

LEAD IN AIR AND PARTICULATES SAMPLED AT QUEENS BLDGS. IN WILLIAM STREET DURING 1980

Calendar quarterly averages of 24-hour high volume samples taken
every sixth day

Micrograms per cubic metre

	JAN - MAR	APR - JUN	JULY - SEPT	OCT - DEC
Lead	2.6	2.7	2.9	2.5
Particulates	63	54	51	52

For particulates, the highest daily level was $88 \mu\text{g m}^{-3}$ and the annual average was $55 \mu\text{g m}^{-3}$.

Appendix H

LEAD IN AIR AND PARTICULATES SAMPLED AT BUREAU OF METEOROLOGY IN PERTH DURING 1981

Calendar quarterly averages of 24-hour high volume samples taken
every sixth day

Micrograms per cubic metre

	JAN - MAR	APR - JUN	JULY - SEPT	OCT - DEC
Lead	0.8	1.2	1.1	0.6
Particulates	53	43	39	41

For particulates, the highest daily level was $95 \mu\text{g m}^{-3}$ and the annual average was $44 \mu\text{g m}^{-3}$.

Appendix I

HIGH VOLUME SAMPLING, BUNBURY

All results in microgrammes per cubic metre

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	47	31	47	72	44	67	60	101	-	35	44	38
Maximum daily concentration	54	35	60	147	64	97	97	198	-	64	47	39

Annual arithmetic mean : 56

Annual geometric mean : 49

Appendix J

HIGH VOLUME SAMPLING, PORT HEDLAND

(All results micrograms per cubic metre)

Howe Street (Near Hospital)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	51	57	-	67	81	-	70	100	96	88	114	99
Maximum Daily Concentration	77	67	-	91	131	-	224	224	148	120	248	147
Annual Arithmetic Mean : 112												
Annual Geometric Mean : 85												

Swimming Pool (Near Shire Offices)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	41	51	84	25	26	-	25	42	53	36	49	60
Maximum Daily Concentration	48	53	122	49	35	-	31	69	70	43	62	114
Annual Arithmetic Mean : 41												
Annual Geometric Mean : 35												

Stanley Street (Near PWD Pressure Tank)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	39	-	45	31	19	32	19	24	35	28	29	44
Maximum Daily Concentration	60	-	87	49	36	57	31	28	40	30	34	79
Annual Arithmetic Mean : 39												
Annual Geometric Mean : 34												

Airport

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	32	-	26	24	24	24	16	23	41	33	32	45
Maximum Daily Concentration	41	-	30	30	37	50	22	22	50	40	38	49
Annual Arithmetic Mean : 29												
Annual Geometric Mean : 27												

Appendix K

METROPOLITAN SULPHUR DIOXIDE CONCENTRATIONS 1980

(All results expressed in micrograms per cubic metre.)

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	SEVEN HIGHEST 24 HOUR VALUES FOR YEAR							ANNUAL AVERAGE
PERTH	62	50	30	19	21	11	10	8	12	16	14	18	86	97	98	104	108	163	328	23
BANGANUP	33	23	37	13	5	2	3	3	8	9	17	11	83	88	90	123	137	154	269	14
BENTLEY	48	21	25	20	11	11	11	10	9	12	13	13	73	83	91	112	118	124	132	17
CLAREMONT	-	4	5	2	3	1	3	1	1	4	4	10	11	15	16	20	22	23	37	3
HILLMAN	19	21	17	8	10	3	2	7	8	9	6	-	42	44	46	48	54	61	66	10
INGLEWOOD	14	9	7	6	1	0	1	0	1	2	2	3	19	25	26	28	37	41	65	4
LYNWOOD	58	29	40	10	-	-	-	-	-	-	-	-	86	104	108	118	140	149	180	34
MEDINA	2	1	3	3	2	1	1	2	1	7	1	0	14	15	18	19	21	30	34	2
ORELIA	24	14	10	7	4	4	4	6	3	4	2	3	44	46	52	61	71	94	178	7
ROCKINGHAM	7	4	8	4	8	4	8	3	1	3	1	2	20	22	25	34	44	53	54	4
WEMBLEY DOWNS	6	6	6	2	1	1	3	1	1	1	1	5	19	21	23	24	26	29	42	3

WORLD HEALTH ORGANISATION RECOMMENDED LONG TERM GOALS

Sulphur Oxides - British Standard Procedure Annual mean $60 \mu\text{g}/\text{m}^3$
98% of observations below $200 \mu\text{g}/\text{m}^3$.

Appendix L

METROPOLITAN SMOKE READINGS, 1980

All results in micrograms per cubic metre

SITE	ANNUAL AVERAGE
PERTH	3
BENTLEY	2
BANGARUP	1
HILLMAN	1
CLAREMONT	2
INGLEWOOD	2
MEDINA	2
ORELIA	1
ROCKINGHAM	1
WEMBLEY DOWNS	3

Appendix M

KWINANA AIR MODELLING STUDY - SULPHUR DIOXIDE CONCENTRATIONS, 1980

(All results expressed in micrograms per cubic metre)

SITE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	Seven highest 24 hour values for data collected	Highest 3 hour average	Average of all data collected
Tomislav Way Wattleup	71	77	77	39	20	11	16	16	40	56	75	65	212 20 197 192 189 186 183	1110	47
Percentage data avail- ability	99	97	98	98	98	54	43	100	99	97	95	89			

Appendix N

SULPHUR DIOXIDE MONITORING, KALGOORLIE, 1980

All results expressed in micrograms per cubic metre

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	SEVEN HIGHEST 24 HOUR VALUES FOR YEAR					ANNUAL AVERAGE		
BOULDER																				
Moran Street	6	-	4	-	1	5	3	10	4	2	1	9	55	55	48	47	42	42	36	5
KALGOORLIE																				
Whitlock St.	-	-	-	-	-	-	24	36	44	46	71	87	511	383	307	256	255	204	176	-
LAMINGTON																				
Campbell St.	-	-	-	-	-	-	22	37	46	21	23	14	161	127	82	82	72	69	65	-

Appendix 0

METROPOLITAN OXIDES OF NITROGEN CONCENTRATIONS 1980

All results expressed in micrograms per cubic metre

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	HIGHEST	LOWEST	ANNUAL
													24 HOUR AVERAGE	24 HOUR AVERAGE	
PERTH 57 Murray Street.	151	63	50	88	104	62	87	66	103	40	45	44	270	0	75

Appendix P

CARBON MONOXIDE AT 57 MURRAY STREET, PERTH

Results in parts per million

1980	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	0.7	0.9	0.9	1.0	1.4	1.0	1.0	1.0	0.8	0.6	0.6	0.4
Highest 1 hour												
Average	3.5	3.0	5.6	4.8	7.6	4.6	6.4	6.4	4.7	2.1	2.9	2.6
Highest 8 hour												
Average	1.9	2.1	2.6	3.0	3.9	3.1	3.6	3.0	2.6	1.7	1.6	1.6

Yearly Average : 0.86

Appendix Q

CARBON MONOXIDE NEAR CORNER OF MURRAY AND WILLIAM STREETS, PERTH

Results in parts per million

1980	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	2.6	1.7	2.0	1.5	1.3	1.1	Monitor	Temporarily	Re-sited			
Highest 1 hour												
Average	11.2	6.3	6.1	5.8	6.1	5.1	Monitor	Temporarily	Re-sited			
Highest 8 hour												
Average	6.9	3.8	4.5	3.9	3.8	2.9	Monitor	Temporarily	Re-sited			

Yearly Average : 1.79

Appendix R

OZONE AT 57 MURRAY STREET, PERTH

Results in parts per hundred million

1980	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	0.8	0.9	0.6	0.4	0.4	0.7	0.5	1.0	0.8	1.0	1.5	0.8
Highest 1 hour												
Average	7.0	4.1	4.4	2.7	2.0	2.3	2.4	3.6	2.7	3.9	6.6	6.5
Highest 8 hour												
Average	3.9	2.6	2.3	1.6	1.5	1.9	1.8	3.0	2.5	2.4	3.3	3.2

Yearly Average : 0.8

Appendix S

FLUORIDE EMISSIONS FROM SUPERPHOSPHATE WORKS

LOCATION	KILOGRAMS/HR. OF FLUORIDE
Albany	0.13
Bunbury	0.11
Esperance	0.24
Geraldton	1.21
Kwinana	0.64

The increase in fluoride emissions at Geraldton and Kwinana is attributed to the necessary increased use of fluoride phosphate which has a higher natural fluoride content.

Appendix T

FREQUENCY OF 24 HOUR CONCENTRATIONS OF FLUORIDE IN THE AIR MEASURED AT A VINEYARD NEAR A BRICKWORKS

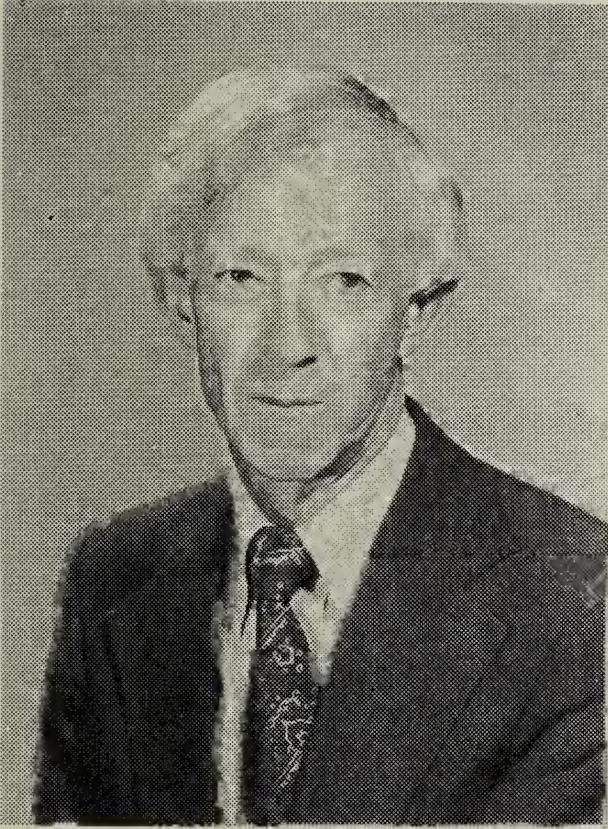
FLUORIDE (AS HF) PARTS PER BILLION	NUMBER OF DAYS
0 - 0.2	121
0.2 - 0.4	62
0.4 - 0.6	10
0.6 - 0.8	1

Appendix U

HIGHEST HOURLY AVERAGE FLUORIDE CONCENTRATIONS AS HYDROGEN FLUORIDE, MEASURED AT A VINEYARD NEAR A BRICKWORKS

	FLUORIDE (AS HF) PARTS PER BILLION
September 1979	0.65
October	0.65
November	0.55
December	0.50
January 1980	0.75
February	1.45
March	1.30
April	0.45

STATE X-RAY LABORATORY - PHYSICS DIVISION

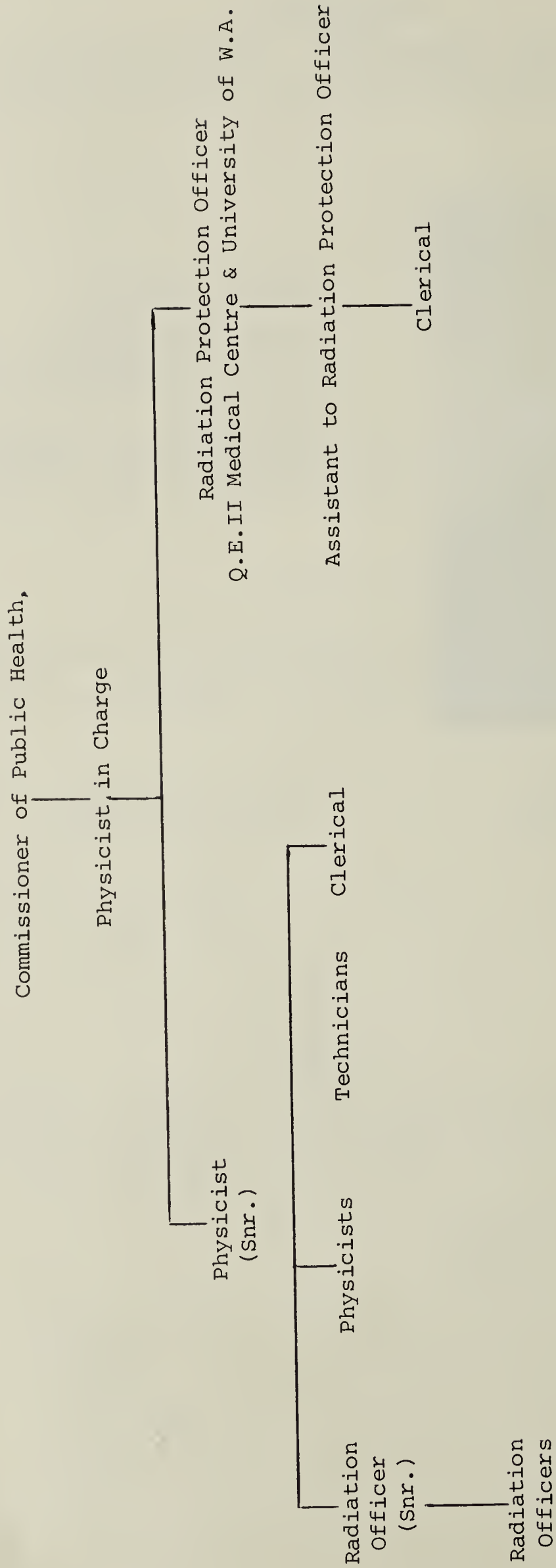


B.E. King,
M.Sc., B.Sc.
Physicist in Charge

SENIOR STAFF

Physicist in Charge: Mr. B.E. King
Physicist (Senior): Mr. B.M. Hartley
Radiation Protection Officer: Mr.
L.M. Davies
Radiation Officer (Senior): Mr. B.J.
Cobb

STATE X-RAY LABORATORY, PHYSICS DIVISION - ORGANIZATION CHART



STATE X-RAY LABORATORY

INTRODUCTION

Western Australia's radiation protection service is provided by the Physics Division of the State X-Ray Laboratory, a branch of the Department of Health and Medical Services. The radiations of concern are firstly, x-rays and the radiations from radioactive substances, known as the ionising radiations, and secondly the non-ionising radiations which include microwaves, ultraviolet, visible and infra-red radiation, all of which can be produced in controlled modes and intensities which are known to be hazardous.

The Division provides the necessary administrative and technical services in support of the Radiological Council, the authority appointed under the Radiation Safety Act 1975, to be responsible for radiation safety in W.A., including administering a system of licencing and registration. The Radiological Council makes a separate Annual Report to the Minister for Health. The work of the State X-Ray Laboratory is described in this report to the Commissioner.

The primary objective of the Council and the Division is to ensure that the use of radioactive substances, x-rays and the non-ionising radiations does not result in exposure of any person to levels of radiation that are unacceptable. Where radiation is necessarily applied to patients for diagnostic or treatment purposes, the aim is to ensure that this is done with the minimum possible exposure to radiation of the patient. Maximum permissible levels for ionising radiations are set out in the regulations, and similar levels for non ionising radiations established by national and international bodies have been agreed upon in principle for application in W.A. The aim is to ensure that no person in the occupational situation is exposed to radiation in excess of the regulation or other agreed limit, and likewise that any exposure of members of the public is within appropriate limits.

DIAGNOSTIC USE OF IONISING RADIATION

It has long been recognised that the Medical and Dental use of x-rays for diagnostic purposes is the largest source of radiation exposure of human beings resulting from man's activities. In Western Australia there is in excess of 950 x-ray units used for medical, dental and chiropractic radiography. In 1980 the number of licenses and registrations applicable to x-ray units used for diagnostic purposes rose from 572 to 704, an increase of 23%. From time to time all these units are inspected for compliance with the Radiological Council's Standards which are based on the recommendations of the International Commission on Radiological Protection and where appropriate, on Australian and other national standards. Particular emphasis is placed on those aspects of the equipment which have a direct bearing on the radiation dose delivered to the patient. At the end of 1980, there were 89 medical x-ray installations in Western Australia using image intensifiers with television for display of the fluoroscopic image. The careful inspection of this type of equipment is most important since it has

great potential for delivering high doses to the patients. Over a period of time, the equipment can drift out of adjustment resulting in a great increase in the dose rate to the patient without the users necessarily being aware of this. Consequently, the inspection of image intensifier/television systems has become a time consuming component of the work of the Division.

NON-IONISING RADIATION

Many requests are received each year from industry, education and private individuals to test "electronic products" particularly those devices which may produce non-ionising radiation. The Division is equipped with measuring devices which enable safety test to be carried out on microwave ovens and lasers, and on those electronic products which emit ultraviolet light. Close attention was paid to a laser light show which was presented in a number of entertainment venues. The laser required for this type of exhibition is such that without proper safeguards, it could cause damage to the eyes of spectators.

The Division is handicapped by the lack of equipment for analysis of radio-frequency radiation but it is hoped that this will be remedied in 1981.

FIELD WORK

The Division has a regular programme of visiting major medical research and industrial installations through the State where radiation is used. Ideally, the frequency of visits relates to the level of potential radiation hazard, but in practice staff availability limits the frequency to something less than ideal. A visit to licenced and registered premises, in addition to ensuring that the regulations are being complied with, is also an opportunity for education in the safe use of radiation. The Division places great emphasis on the educational content of these visits. Over 300 premises were visited during the year. Seven of the Division's personnel made a total of 26 country trips.

RADIATION MONITORING

Methods of monitoring exposure to radiation are necessary to ensure that radiation safety standards are met and maintained. For ionising radiation the film badge is a simple and effective means of providing surveillance of radiation exposure for persons working with most types of ionising radiation. Knowledge of the radiation dose has an important educational influence on radiation workers and encourages them to improve their working procedures. In 1980, 26,784 films were processed and doses evaluated by the Division's film badge radiation monitoring service. This represents an increase of 17% over the number for the previous year. In recent years, a number of attempts have been made to limit the growth of the film badge service while still maintaining radiation safety standards. An increase in the period of monitoring in dental practices and the elimination of monitoring when it was considered the risk was negligible had only a temporary effect in slowing the growth of the service. This problem will be closely studied during 1981 to determine whether standards of radiation protection can be maintained while the number of persons monitored is reduced. Statistics relating to the film badge service are given in the Annexe to this report.

While a film badge provides a record of the accumulated radiation exposure received over a period of time, the survey instrument permits measurement during the actual use of radiation and allows decisions to be made on radiation safety matters at the time of measurement. An instrument's calibration can change during use in the field, and to ensure that instruments are suitable and maintain their correct calibration, the Division provides an instrument checking service for users. 80 Radiation monitoring instruments were checked during 1980.

RADIATION PROTECTION PLANNING

The Division encourages early consultation between its officers and organisations proposing to build radiation facilities. This permits radiation protection requirements to be discussed in the planning stages, so ensuring that due regard is paid to safety requirements while at the same time, avoiding unnecessary expense through over use of protective shielding.

Planning advice is given on medical, dental, veterinary and chiropractic diagnostic x-ray facilities and on laboratories where radioisotopes are to be used.

RADIATION MEASURING AND RADIOACTIVITY COUNTING EQUIPMENT

The Division is equipped with a range of portable monitoring equipment to measure the ionising radiations and a number of the non-ionising radiations covered by the Radiation Safety Act. There are fixed installations for counting and analysis of radioactive substances using sodium iodide and semi conductor detectors. A substandard x-ray dosimeter calibrated against the Australian Primary Standard is used for the calibration of monitoring instruments and of superficial therapy x-ray apparatus. A range of standard radioactive sources is available for the checking of gamma ray monitoring instruments.

MINING AND MILLING OF RADIOACTIVE ORES

Officers of the Division continue to give major attention to radiation safety in the mining and milling of radioactive substances. Through the Chamber of Mines, the Division has a continuing liaison with the producers of the radioactive mineral monazite. Dr. B.M. Hartley has continued to represent the State on a Commonwealth/State Consultative Committee and on the Committee's working groups preparing codes of practice on various aspects of safety in the mining and milling of radioactive ores. The Committee's "Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores" was issued in September 1980. The Committee is now working on the guidelines in a number of specialised areas and these will supplement the Code. Dr. Hartley has made a number of visits to the Western Mining Corporation's minesite at Yeelirrie and to the company's metallurgical research plant at Kalgoorlie where uranium ore will be processed on a pilot basis. The Division co-operated with the Australian Radiation Laboratory in carrying out an environmental survey in and around the site of the mine and pilot plant.

Late in 1979, attention was focussed by the media on the concentration of radium during the processing of ilmenite at the plant of Laporte Titanium near Bunbury. Ilmenite is a product of the mineral sands mining industry and contains a low concentration of the same radioactive substances as are present in monazite. The accumulation of radium at the plant resulted in measurable radiation dose levels and in contaminated items of equipment which were initially disposed of by burial at the company's waste site. Officers of the Division visited the plant to investigate the problem but shortage of staff prevented the investigation proceeding. Subsequently, at the Radiological Council's suggestion, the company invited the Australian Atomic Energy Commission and later the Australian Radiation Laboratory, to study the matter.

EDUCATION

The Division continues to put a major effort into education of users of radiation, particularly in industrial areas where engineers and technicians have little, if any, basic training in radiation usage and safety. The time and effort devoted to this activity is considered to be well spent in contributing towards a high standard of radiation safety among users of radiation. The following courses were given in 1980:

Basic Radiography for country hospitals	(4 one week courses: 44 students)
Basic Radiography for G.P.'s staff	(2 four day courses: 16 students)
Radiation Safety in the Use of radiation gauges in industry	(3 three day courses: 44 students)
Radiation for Health Surveyors	(2 two day courses)
Workshop on Radiation Safety in Monazite Mining	(1 day workshop: 6 participants)

Lectures on Radiation Safety and related topics were given to groups from the W.A. Institute of Technology, Perth Dental Hospital, Industrial Foundation for Accident Prevention.

The Division faces an increasing demand for radiation safety courses, particularly in the industrial area, but because of lack of sufficient staff has not been able to increase the number given. No courses are given in radiation safety for industrial radiography, although it is a requirement of the Radiological Council that persons carrying out industrial radiography must demonstrate their knowledge of radiation safety by passing an exam. This examination is handled for the Council by the Division. Twenty nine applicants were examined during 1980.

PUBLIC INFORMATION

The Division received a steady stream of enquiries on radiation matters from the public. The number of enquiries increases following reference in the media to particular radiation hazards but during 1980 many of the enquiries related to microwave ovens

VISITS OF NUCLEAR POWERED WARSHIPS

During visits of nuclear powered warships to the Naval Base HMAS Stirling at Garden Island, four staff of the Division are rostered to be on standby to carry out emergency radiation monitoring should this be necessary.

Routine monitoring is carried out by Atomic Energy Commission personnel. During 1980, 12 nuclear powered warships visited the Base, each visit having a duration of approximately one week.

RADIATION PROTECTION OFFICE, QUEEN ELIZABETH II MEDICAL CENTRE

The Division provides the staffing and facilities for the site Radiation Protection Office which serves users of radiation on the site of the Q.E. II Medical Centre at Nedlands. These users include the Sir Charles Gairdner Hospital, University of W.A. Medical School, State Health Laboratory Services and the State X-Ray Laboratory. The office also serves the nearby main campus of the University of W.A. at Crawley. The University assists by funding the salary of one member of the staff of the office.

STAFF OF THE DIVISION

The staff of the Division consists of the following:

- | | |
|---------------|----------------------|
| 4 Physicists | 3 Radiation Officers |
| 2 Technicians | 4 Clerical. |

As reported in 1979, the numbers of professional and technical staff have remained static for over six years despite a continually increasing workload. The clerical position of Senior Clerk Typist remained vacant for 5 months pending an application for re-classification. The staff of the Radiation Protection Office, consisting of two Physicists, are not included in the above figures. Once again, it is a pleasure to express appreciation to the enthusiastic and conscientious manner in which staff perform their duties.

ANNEXE

FILM BADGE RADIATION MONITORING SERVICE

TABLE 1

ANNUAL NUMBER OF FILMS PROCESSED AND ASSESSED

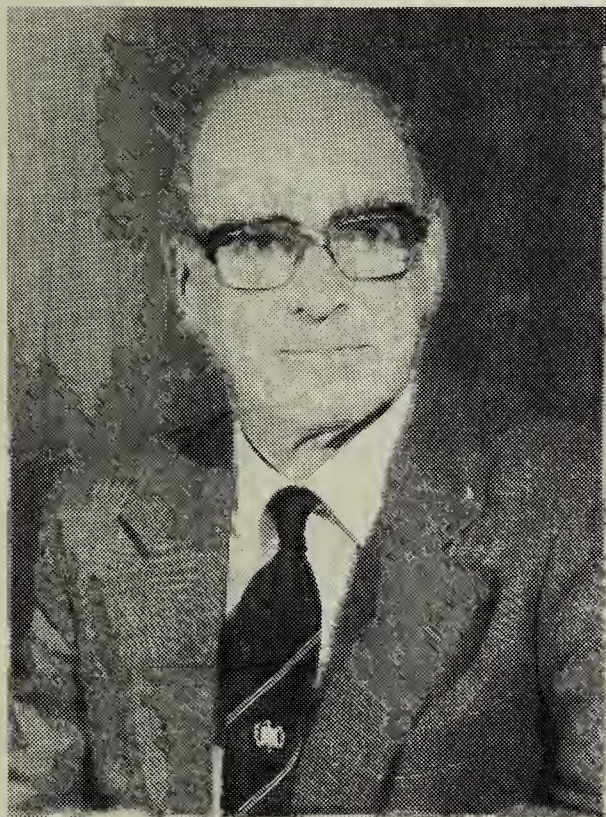
1976	20,761
1977	22,032
1978	21,811
1979	22,896
1980	26,784

TABLE 2

USER GROUPS

USER GROUP	NO. OF EMPLOYERS	PROPORTION OF TOTAL FILMS ISSUED
Hospital	119	28.4
Radiology	21	4.8
General Practice	21	2.9
Medical Miscellaneous	26	6.3
Dental	406	7.5
Chiropractic	22	1.4
Veterinary	73	10.6
Industrial	83	38.0
	766	100.0

EDUCATION SERVICES BRANCH

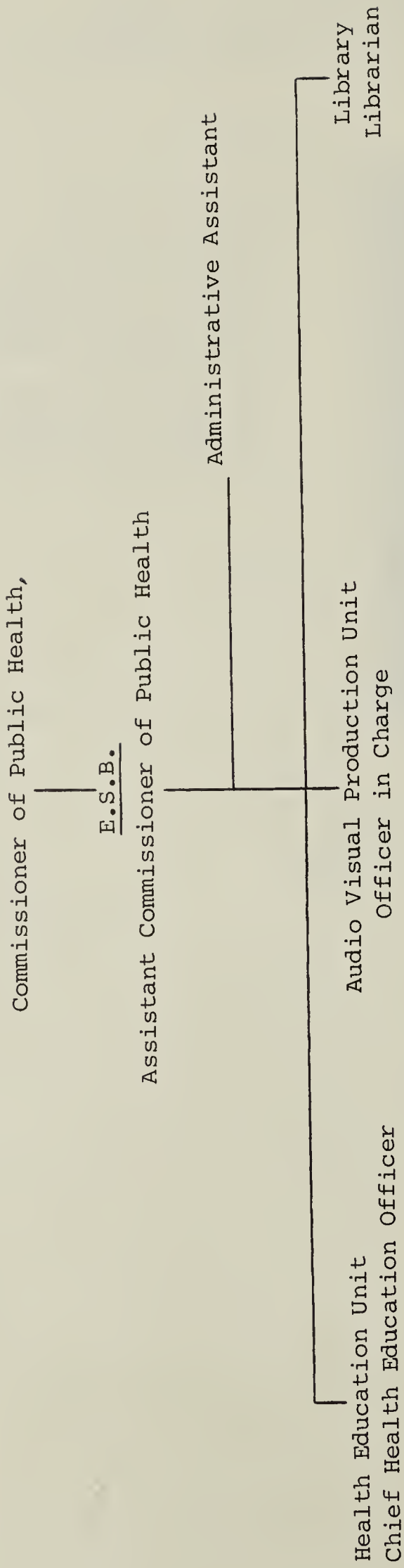


SENIOR STAFF

Assistant Commissioner of Public
Health: Dr. K.J.M. Carruthers
Chief Health Education Officer: Mr.
C. O'Doherty
Officer in Charge, Audio Visual
Production Unit: Mr. R. Plummer
Librarian: Mrs. B. Proud

K.J.M. Carruthers,
J.P., M.D., B.S., M.R.C.S., L.R.C.P.,
D.P.H., F.C.C.P., F.A.C.M.A., A.K.C.
Assistant Commissioner of Public Health

EDUCATION SERVICES BRANCH - ORGANIZATION CHART



EDUCATION SERVICES BRANCH

1. INTRODUCTION

The Branch, consisting of the Library, the Health Education Unit and the Audio Visual Production Unit, was created in March 1980 with the objective of grouping together those departmental functions concerned with education. The aim was to provide co-ordination of interrelated functions and appropriate administrative control. This took place in conjunction with the absorption into the department of the Health Education Council's staff. The Clinical Photography Unit was transferred from the State Health Laboratory Services to the Education Services Branch. The audio visual staff of the former Health Education Council was incorporated into this Unit, which was re-named the Audio Visual Production Unit.

The library, through its provision of books and journals, literature searches and information services, supports all branches of the Public Health Division, the Alcohol and Drug Authority, the Division of Hospital and Allied Services and non-teaching government hospitals. It plays a vital role in providing urgently required information of a highly technical and sophisticated nature, often at short notice.

The Health Education Council was established by Act of Parliament in 1958 and has made a valuable contribution to the welfare of the community. The success of control measures to combat infectious diseases has highlighted so called "modern epidemics" such as coronary heart disease, sexually transmitted diseases, road crash injuries and lung cancer. These are very largely related to individual behaviour, which in turn is related to the prevailing culture and to community attitudes. While health education is not the complete answer to these problems, it has a vital role to play. The Health Education Unit exists as a specialist service to produce resources, to conduct programmes and to train health professionals and other key people in the community. The unit is the spearhead of the Department's health promotion activities.

Video tape, slide tape and sound tape productions have a great potential in the education of health professionals. The Audio Visual Production Unit was reconstituted in March 1980 with the express purpose of establishing a central government 'health' unit in order to provide services which would make it unnecessary for each major teaching hospital to develop its own television unit.

The unit has facilities for the provision of clinical illustrations, for the education of health professionals, for medico-legal purposes, and for the diagnosis and assessment of clinical conditions. Examples of the latter are the measurement of the change in skin lesions over a period of time, assessment and progress in hair lip and cleft palate, orthodontics and orthopaedic conditions resulting in deformity, and retinal angiography. Video productions have a similar and increasing role to play in clinical work.

Audio visual productions of all kinds provide essential resource materials for health education and health promotion programmes. The new arrangements provide the Department and the State's health services generally with improved facilities for audio visual production, without increasing staff establishments.

2. LIBRARY

The most significant event in 1980 was the acquisition of a computer terminal which enabled the library to join the Australian MEDLINE network. The library now has on-line access to a variety of data bases covering medical, toxicological nursing, dental and biological information through the MEDLINE network, which is jointly run by the National Library of Australia and the Commonwealth Department of Health in Canberra.

The terminal can also be used to access data bases covering virtually every subject area, which are operated in California by the Lockheed and SDC companies.

The ability to have rapid access to these data bases has enabled the library to improve the retrieval of information function dramatically. Far more material can be obtained than was previously possible and it can be obtained in a very short time.

In July the Commonwealth Government introduced local dial-up facilities, and the National Library of Australia sent an officer to Perth to conduct MEDLINE training courses for local medical librarians. This library was the venue for several of these training courses. The Librarian-in-Charge and several of her staff have been trained to operate the system.

Miss J. Harrison (deputy librarian) attended several cataloguing seminars in relation to the introduction of the revised international cataloguing rules (AACR II).

The Librarian-in-Charge spoke on information services at the Annual Conference of Health Surveyors in September. The library contributes a section to the W.A. Health Surveyors Quarterly Journal.

The library now holds all the video tapes produced by the Audio Visual Section. A catalogue of video tapes is being prepared. Duplication of tapes is organised through the library.

In consultation with the Controller of Government Stores a new system for the ordering of journals is being introduced in order to streamline administrative procedures. Journal subscriptions are now being arranged by several Australian subscription agencies. Full implementation of these arrangements will take approximately two years, but the benefits have already been felt. The Librarian-in-Charge is a member of a Government Stores working party established to monitor and evaluate the new system.

Sustained effort in 1980 has enabled the backlog in binding of journals to be almost eliminated. In future years the binding will be at more normal levels.

The library service to the North West hospitals has continued to improve. Funds were available for the smaller centres and collections have been set up in them. Miss G. Gover made several trips to the North West to establish or improve systems.

The branch libraries have continued to be very busy and their librarians are all to be congratulated for their efforts. They often have to work under far from ideal conditions with minimal clerical assistance.

As well as several staff members from the National Library of Australia, the library was visited by the Chief Librarian of the World Health Organisation in Geneva who was in Perth to discuss possible assistance to the Pacific region countries.

Tables 1 to 4 present essential data in respect of the library's operation during the year.

TABLE 1

BOOKS ACCESSION, 1980

Public Health (Head Office)	1187
Community & Child Health Services	428
State Health Laboratory Services	140
State X-Ray Laboratories	190
Dental Health Service	136
Occupational Health, Clean Air, Noise Abatement	145
Community Health Centres	79
Hospitals	803
TOTAL:	<u>3108</u>

TABLE 2

AUDIO VISUAL MATERIAL ACCESSIONED, 1980

Video Cassettes	101
Tape/Slide Sets	8
Audio Tapes	26
TOTAL:	<u>135</u>

TABLE 3

INTER-LIBRARY LOANS

Interstate and Overseas Loans:

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Australia	165	155	471	707	643
Overseas	14	4	13	13	9
TOTAL:	179	159	484	720	652

Intrastate Loans:

Courier Service	608	758	826	1057	948
Other	192	370	646	657	653
TOTAL:	800	1128	1472	1714	1601

External Borrowings:

Overseas/ Interstate	628	696	436	529	519
Courier	713	1185	1564	1434	1528
Intrastate					
Other	280	355	350	412	500
TOTAL:	1621	2236	2350	2375	2547

BOOK LOANS: 2201 (Head Office only)

NEW JOURNALS: 66

ANNUAL REPORTS: 116

PHOTOCOPIES: 2515 (Monthly average of items Head Office only)

COMPUTER SEARCHES: 292

TABLE 4

Branch Libraries

	<u>SHLS</u>	<u>DHS</u>	<u>CCHS</u>	<u>OH</u>	<u>SXRL</u>
Reference queries	366	90	380	392	N/A
Book Loans	492	491	3392	432	N/A
Photocopies provided (items)	3586	310	9042	334	N/A
Books borrowed (not through Head Office)	98	N/A	66	N/A	N/A

3. HEALTH EDUCATION UNIT

In March 1980 staff formerly employed by the Health Education Council of Western Australia were absorbed into the newly formed Education Services Branch of the Department. The majority of the Council's functions were taken over by the Health Education Unit. July saw the retirement of Mr. J.T. Carr, the Unit's Chief Health Education Officer.

The past year has, therefore, been one of change followed by consolidation. Considerable emphasis has been placed on forward planning and the first steps in the formulation of a long term programme have been taken. Apart from the administrative changes noted above, the main factors which have influenced the Unit's programme during 1980 have been:

- (a) Increased requests from staff employed by other branches of the Department of Health and Medical Services for assistance with staff training programmes and in developing public education programmes.
- (b) A greater acceptance by teachers and by health workers that the Unit's officers can often best assist them by helping in the planning of health education programmes. In the past health education officers were mainly called upon to conduct single sessions for groups.
- (c) A greater awareness among health, education and welfare workers of the services which are offered by health education officers working in regional offices.
- (d) An increased emphasis on programme evaluation and on setting priorities.

CENTRAL RESOURCES

Specialist Support for Health Workers

Emphasis is placed on supporting other health education and welfare workers who are actively engaged in delivering health education to school students and to the general public.

During the year the two health education officers employed to assist teachers in the development of school health education programmes conducted a pilot 15-hour in-service programme for primary school teachers. Assistance was also given in the planning and management of the Education Department's 2-week in-service course for high school teachers.

Other specialist staff have assisted in the development of health education programmes for local government health surveyors. In July a one-day conference which aimed to identify the needs of health surveyors for health education was arranged. Follow-up programmes have been developed.

Emphasis has been placed on the development of nutrition education programmes for school students. A new initiative has been the development of health education materials in migrant languages (see

below). Assistance with training programmes was given to other branches of the department and to voluntary organisations.

PROVISION AND DISTRIBUTION OF INFORMATION

Publications

The publication of a regular monthly Health Education Reading has continued and important public health issues have been highlighted.

The publication of the Unit's review guide to health education literature "Health Education News and Views" also continued.

A special edition on the smoking issue was prepared this year. In October a survey of readers was carried out. Responses showed that this is regarded by professional health educators and by other health and education workers as a valuable resource.

A new magazine for teachers entitled "Health in Schools" has been produced. Copies are sent to all schools and school health nurses free of charge. The first edition received a very favourable response from schools and a large number of contributions from teachers and health workers has been received.

Distribution of Publications 1980

The Unit's publications are distributed monthly to Community Health Centres, Child Health Clinics and to the large number of health workers and members of the general public who have requested that their names be included on the Unit's mailing list.

Total number of publications distributed are as follows:

Health Education Readings	597,731
Information Bulletins	4,342
Technical Information Bulletins (for Commonwealth Department of Health)	3,040
Health Education News and Views	1,526
Health Education News and Views Smoking Special	526
Health in Schools	2,250
TOTAL:	<u>609,415</u>

Audio Visuals

This year audio visuals for use by schools and community groups have been prepared on fly control, child development, food and energy, and immunisation. Production was by the branch's Audio Visual Production Unit.

Films and Other Audio Visual Materials

The Unit has continued to operate a film lending library. Films and other audio visual material are lent to schools and community groups. Total bookings for 1980 were 3,353. All schools and interested community groups are circulated with a list of the audio visual material available.

Information Services

A large number of requests for information is received from students, health professionals and members of the public. Wherever possible, Unit staff attempt to meet these requests or to direct people to other organisations which may assist them.

St. George's Hall - Theatre in Health Education

Preliminary steps for the development of this aspect of the Unit's work have been taken during 1980. Plays which highlight problems of the disabled will be performed for the International Year of Disabled Persons.

Research and Evaluation

Following the appointment of a full-time research officer, it has been possible to carry out evaluation of a number of the Unit's major projects. Programmes evaluated have included the Smoking Education Programme for Year 7 students (see below). Baseline research studies have been conducted to assess the influence of the press on the attitudes of West Australians toward the drug issue and on public knowledge of the amoebic meningitis issue (see below).

REGIONAL ACTIVITIES

The Health Education Unit employs five officers in the metropolitan area and has staff at the country health centres listed below. These officers have initiated and developed a number of school and community based programmes within their regional areas.

Armadale

There has been increased support for primary school health education programmes this year. These were planned with teachers and carried out at local primary schools. The majority of programmes have been for year 7 students.

Support has been given to Armadale, Kelmscott and Bentley high schools. A special programme for an alternative class for year 10 students was designed with assistance from the Unit's school health education officer.

The officer working from this centre has been able to offer support to a wide range of local health workers. These have included dental therapists and staff of the Department of Community Welfare.

Claremont

Support has been given to local teachers wishing to plan health education programmes for their schools. A programme for overweight teenagers was planned, conducted and evaluated with assistance from the Unit's Perth office. Programmes have also been run for psychiatric nursing aides at Graylands Nursing School. As the University of W.A.'s Department of Community Practice is located at this Health Centre, there has been some involvement in providing a small health education component for fifth year medical students.

Fremantle

Research carried out following a review of the centre's activities in 1979 showed that there was a considerable need for health education material for migrants.

One of the officers employed at this centre has, therefore, been concerned almost exclusively with the provision of resource material for non-English speaking migrants. This has included a set of sex education leaflets in Vietnamese based on simplified and culturally adjusted versions of the Health Education Unit's English language material.

Kwinana

This year a Home Visitors Training Programme was initiated. The programme aimed to equip a group of women with the skills to visit isolated people. The first course has been completed and there is a waiting list for a course in 1981.

A new six-session programme for parents has been developed. This attempts to teach some basic skills of behaviour management.

Support has been given to all activities conducted through the Aboriginal Cultural Centre. Video was used to depict the work being done there.

Midland

Programmes initiated during 1980 have included a ten session Family Communications and Health Education programme for parents at a local primary school.

During 1979 a number of teachers had requested assistance in planning and conducting sex education programmes for year 7 students. Therefore, a series of workshops for teachers was organised during 1980, in co-operation with Education Department staff.

Busselton

Further development of services to youth in the area has occurred. This has included co-operative work with the Department of Youth, Sport and Recreation which aims at involving a large number of young people in active leisure time pursuits. As part of this programme, a

Junior Sports Council has been initiated and supported. Other youth activities and social programmes have been developed in conjunction with schools, the district youth centre and the youth education officer.

The health education officer at Busselton has also supported health education programmes in the Manjimup area.

During 1980 a number of organisations such as the National Heart Foundation and the Association for the Blind received assistance from the health education officer in planning workshops and seminars in the Busselton region.

Geraldton

The health education officer employed at the Geraldton Community Health Centre has developed a number of programmes in co-operation with Community and School Health Services. An extensive human growth programme was conducted at primary schools in the region.

A number of new programmes have also been offered to local high schools. Programmes for intellectually handicapped people have been conducted. Regular sessions have been held for the Community Youth Support Scheme. A new programme was developed in Dongara for playschool mothers.

Mandurah

During 1980 the health education officer at Mandurah has become increasingly involved in supporting programmes for local schools. These have included a smoking education programme for year 7 students and a special indirect drug education programme for a group of year 10 students.

Following the success of a pilot Stop Smoking programme in 1979 three further programmes were conducted. Support was offered to ex-smokers.

South Hedland/Hedland

During 1980 the officer employed at this centre has offered support to health workers and teachers in a wide area of the Pilbara. Visits have been made to Rebourne, Wickham, Dampier, Onslow and Pannawonica and as there is no health education officer employed at the Karratha Health Centre this officer has made a number of visits to Karratha.

A three-day workshop for staff of the Port Hedland Regional Hospital was conducted jointly by the health education officer and the Unit's training officer. This focused on communication skills.

SPECIAL PROJECTS

Scarborough Drug Education Project

A baseline study conducted during 1979 showed that there was no drug problem as such in schools in this area, but that 9.7% of the years 7

and 8 children surveyed were already smokers. A ten-session smoking education programme was, therefore, designed and piloted with schools both in this area and at Mandurah. Evaluation is in progress.

Swim in Safe Water Campaign

Following the death of two children from amoebic meningitis in early 1980, the Unit was asked to prepare an amoebic meningitis campaign. A poster, leaflet and school kit were produced. Copies of the kit were sent to every school in the State. Bi-lingual leaflets were also prepared in the main migrant languages. These were distributed through schools and migrant centres. A survey to measure levels of community knowledge about amoebic meningitis was conducted. A follow-up survey will be conducted early in 1981.

4. AUDIO VISUAL PRODUCTION UNIT

The clinical photography section was previously a component of the State Health Laboratories and provided a service in all aspects of medical photography, artwork and clinical television recording to:

Sir Charles Gairdner Hospital
Fremantle Hospital
Princess Margaret Hospital (except television)
King Edward Memorial Hospital
Repatriation General Hospital
State Health Laboratories
Health and Medical Services

During March this Unit was amalgamated with the Audio Visual Production staff of the former Health Education Council and re-named the Audio Visual Production Unit.

To accommodate the new staff members some alterations were made to the existing accommodation, in that a sound recording studio was established and the photographic studio converted to fulfill a dual role to include television recording. The staff room was converted into a television editing room, and the storeroom to an office for the supervisor. Space previously occupied by State Health Laboratories was converted into the slide/tape production area, and the clerk and scriptwriter were given space in the administration area.

Production figures for 1980 in clinical and associated photography and artwork showed an increase of 40% (see Appendix 1). Seventeen television educational programmes were commenced and completed for the following organisations:

Mental Health Services	1
Diabetic Foundation	1
Alcohol and Drug Authority	3
Community & Child Health Services	11
King Edward Memorial Hospital	1

30 clinical television programmes were produced for Sir Charles Gairdner Hospital and covered orthopaedics, neurology, physiotherapy, ophthalmology and student examinations.

12 slide/tape programmes were completed for the following organisations:

Health and Medical Services	9
Diabetic Association	2
Diabetic Research Foundation	1

With the re-organisation of the department's Audio Visual Production Unit, equipment for both slide/tape production, sound recording and television production is being upgraded and it is expected that a full equipment production capability will be available in 1981.

Appendix 1

STATISTICS : PHOTOGRAPHY AND ART

Hospital	Year	No. of Jobs	Colour Slides	Black & White Slides	Colour Prints	Black & White Prints	Art	Other
Queen Elizabeth II Medical Centre	1979	1440	5028	1902	625	1329	170	1000
Queen Elizabeth II Medical Centre	1980	1339	4325	2124	485	1913	168	1005
Princess Margaret	1979	812	3161	304	885	711	30	231
Princess Margaret	1980	909	2753	753	1280	523	47	246
State Health Laboratories	1979	295	1550	336	94	676	80	47
State Health Laboratories	1980	317	1088	375	27	369	65	163
Public Health Department	1979	182	5498	811	233	383	55	151
Public Health Department	1980	345	7909	767	188	591	168	463
Other Government Departments and Private	1979	70	626	126	203	51	-	48
Other Government Departments and Private	1980	43	193	29	79	17	5	38
Repatriation General	1979	57	387	41	5	18	2	-
Repatriation General	1980	72	440	72	35	40	-	13
King Edward Memorial	1979	25	35	114	47	80	10	50
King Edward Memorial	1980	33	106	146	8	39	10	71
Fremantle	1979	66	206	153	28	50	11	-
Fremantle	1980	90	903	219	31	110	6	56
TOTAL	1979	2955	16332	3765	2105	3329	359	1561
	1980	3166	17745	5406	2135	3556	502	2508

HEALTH SURVEYING BRANCH



J.F. Slattery,
M.R.S.H., F.A.I.H.S.
Chief Health Surveyor

SENIOR STAFF

Chief Health Surveyor: J.F. Slattery

Deputy Health Surveyor: R.C. Zehnder

Senior Health Surveyor (General):

N.G. Allen

Senior Health Surveyor (Food & Liquor)

G.E. Kaiser

Senior Health Surveyor (Public

Buildings): G.R. Officer

Senior Health Surveyor (Meat):

R.W. Sweetman

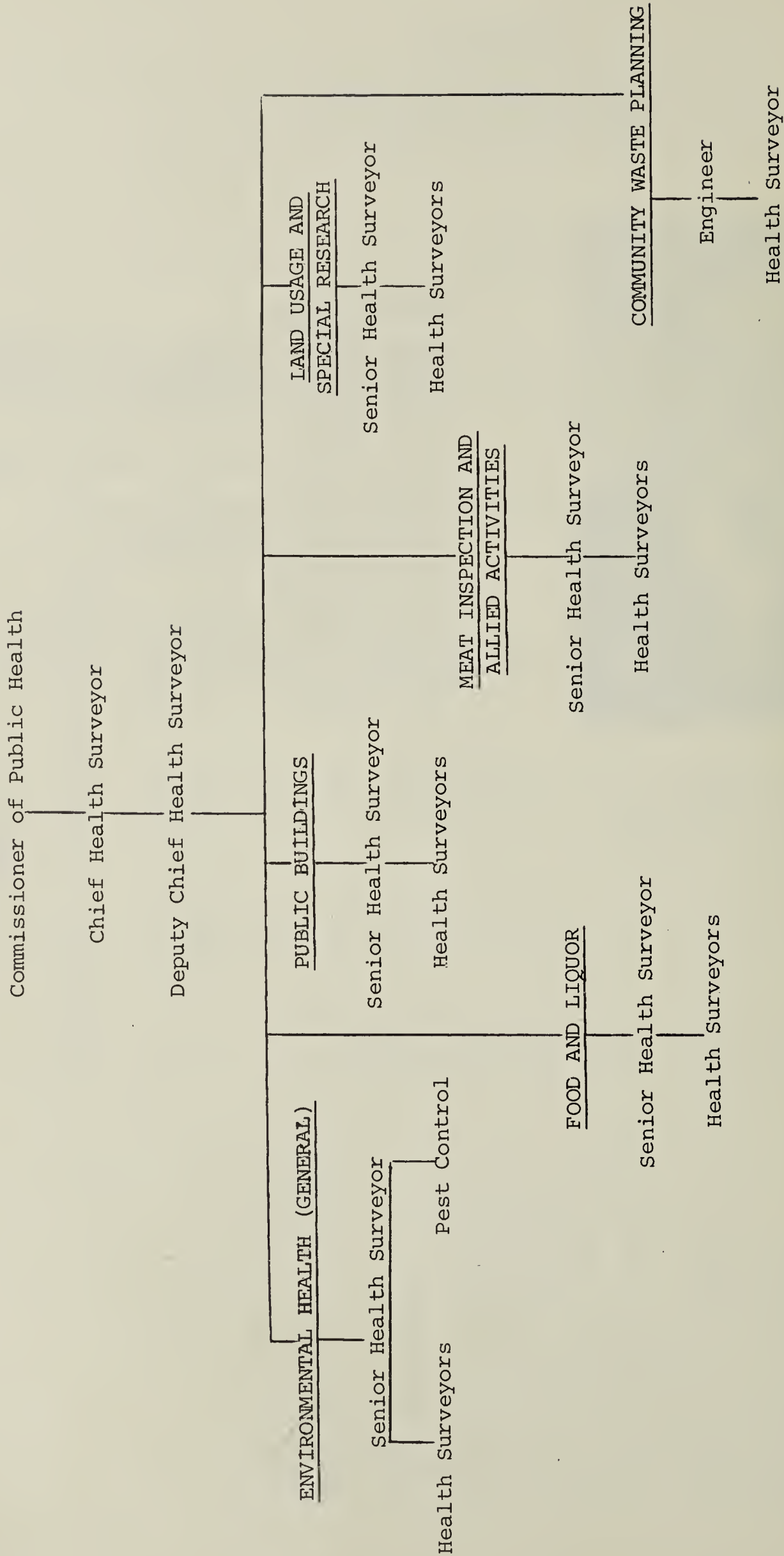
Senior Health Surveyor (Land and

Usage): R.L. Moss

Engineer (Community Waste Planning):

S.B. Hansen

HEALTH SURVEYING BRANCH - ORGANIZATION CHART



HEALTH SURVEYING BRANCH

APPRECIATION

As I have reached retirement age and will be terminating my employment with the Public Health Division early in the forthcoming year, after 45 years of continuous service with the Department, this is the last report I am privileged to submit to the Commissioner of Public Health.

During my period of service I have observed and been involved in many of the changes that have been effected with the development of the Department and I wish to express my appreciation to the directors and officers of the allied divisions and branches with whom the activities of my branch have been closely associated, and in particular to all the officers of the branch for which I have been responsible to the Commissioner of Public Health, and who were responsible for the activities outlined in the report for the year under review.

ENVIRONMENTAL HEALTH (GENERAL) SECTION

AMOEBIIC MENINGITIS

Prior to the summer season a five day visit was made to South Australia for the purpose of establishing methods of control, as used by that State. Subsequent report on the findings resulted in a steering committee being formed. The committee is represented by State Health Laboratory Services, Public Works Department, Health Education Unit and officers of this Department.

The committee is chaired by the Commissioner of Public Health, and all guidelines, including water sampling, health education, chlorination of water supplies and reports are established by the committee.

There has been extensive sampling of water during the 1980 summer period with a total of 42 temperature tolerant (43⁰+) Naegleria species being isolated. Of these, a total of three were proved to be pathogenic to mice.

A panel of speakers has been established, representing the area of swimming pool chemicals, swimming pool equipment supplies, swimming pool construction and officers of this Department. The panel conducts informative lectures and question and answer periods at the request of Local Authorities. This service is proving quite popular.

ROTTNEST ISLAND

The island has been subject to frequent visits by officers of this Department, particularly prior to and during peak holiday periods.

The most significant improvement on the island is the reorganization of the water supply service. Water to all parts of the island is now mechanically chlorinated and a standby chlorinator is available in case of breakdown.

Considerable refencing of catchment areas has resulted in greater control of pollution by quokkas, although there is still considerable work to be done on this project.

Storage tank number six, which has always proved of poor bacteriological standards due to the extensive disrepair of the roof and subsequent contamination by birds, has been completely isolated from the service and will not be reintroduced until completely reroofed.

EASTERN GOLDFIELDS

Health supervision by Departmental Officers was given on a quarterly basis to the Eastern Goldfields area which included visits to:-

Menzies	-	Town of Kalgoorlie
Leonora	-	Town of Teutonic Bore and Leinster
Laverton	-	Mount Margaret
Wiluna	-	Warburton Ranges

Teutonic Bore is a new town completed during the year with a population of 300-400. Each stage of its development was under the supervision of a Departmental Officer, including public buildings, housing, sewerage treatment plant, caravan park and water supply.

KIMBERLEY REGIONS

Continued surveillance of the East and West Kimberley Regions was carried out by Departmental Officers resident in the areas concerned.

A marked increase in population was noted at the townships of Camballin and Kulin Island. This, together with the establishment of a number of new villages for the Aborigines and the continued liaison with mining companies' developments, has increased the workload in the environmental health area in the West Kimberley Region.

Due to the doubtful quality of some private water supplies in the Fitzroy Crossing area, a routine sampling programme was instituted and where necessary, remedial measures were introduced which resulted in a marked improvement being achieved. Routine surveillance of all water supplies is continuing.

CAMPS AND CARAVAN PARKS

During the past 12 months although it has been claimed that there is a down turn in the caravan industry and particularly in regard to tourists, there have been a number of new caravan parks developed throughout the State.

In the developing mining districts there has been a continuing use of parks for semi-permanent residence, largely to the detriment of tourists. There has been no new development of parks within the metropolitan area.

Caravan Parks new draft amended legislation has been completed by the Parliamentary Counsel and is now in the hands of the Minister prior to promulgation.

YOUTH CAMPS AND HOSTELS - CODE OF PRACTICE

In conjunction with representatives from the Department of Youth, Sport and Recreation, Public Works Department, various church groups and the Y.M.C.A., a survey was conducted of various premises of this nature.

The action was precipitated by the conflict of opinion as to which regulations applied to these establishments.

In order to clarify the situation, a committee was formed, to establish suitable guidelines which were acceptable to all parties. This resulted in a Code of Practice which was approved by the Commissioner of Public Health, and duly circulated to all Local Authorities.

ROYAL AGRICULTURAL SHOW

Full time supervision by Departmental Officers was provided for the duration of the Show period. This included the safety aspect of public buildings, electrical wiring, surveillance of food premises and general sanitation of the grounds, toilets, drainage and refuse disposal.

REGISTRATION

A total of 138 food premises were registered.

FOOD SAMPLING

27 samples of various foods were taken for bacteriological examination, all of which proved satisfactory.

Progressive upgrading of food premises has resulted in a good standard being maintained.

DEPARTMENT OF CORRECTIONS INSTITUTIONS

Following recommendations contained in the report submitted to Cabinet by the inter-departmental investigation committee, extensive upgrading has taken place or is in process of upgrading in all State institutions.

ENCEPHALITIS RESEARCH PROGRAMME

Joint activities with the University of Western Australia and the Department of Microbiology, which commenced in 1978 through 1979, were continued and expanded in 1980. These activities included mosquito monitoring and sentinel chicken programmes conducted at and in conjunction with Health Surveyors of the Shires of Carnarvon, Exmouth, West Pilbara, Roebourne, Port Hedland, West Kimberley and Wyndham-East Kimberley. The programmes involved the collection of mosquitoes and chicken blood sera for virus isolation studies.

To enable adequate study on a field basis, a number of items of equipment were acquired over the course of the year, which included a mobile field laboratory/accommodation caravan designed by this Department and purchased with Federal/State funds.

As in past years, a Departmental Officer attended the National Mosquito Vector Control Course at Mildura for specialised training in mosquito control. Unfortunately, Local Authorities did not participate. A decision was taken to conduct a similar course in Western Australia, to facilitate training of Local Authority Officers.

Arrangements have been made to conduct such a course in March 1981, utilising both local and interstate expertise.

PEST CONTROL

Insecticidal treatments in government and semi-government establishments throughout the metropolitan and country areas increased during 1980, with the emphasis again on cockroach, red back spider, termite and rodent eradication.

A rodent baiting campaign using the bait "1080" was instituted in conjunction with the Metropolitan Water Board in sewer lines in the Guildford and Mosman Park areas.

Lecture programmes on the correct use of insecticides and pest control procedures were continued throughout the year, involving Health Surveyors, Trainee Health Surveyors, School and Hospital Gardeners and mature age women.

Major sporting grounds during international sporting fixtures and the International Scouting Jamboree sporting campsite were fogged as a fly and mosquito control measure.

Specific Pest Control Activities

Total Fly Control Inspections	256
Total Number of Insecticidal Treatments	1,221
Total Rodent Inspections and Bait Placements	165

Details of Pest Control Treatments for the Eradication of Insect Pests, Rodents and Animals

Ant	54	Fly	8	Rodent	165
Bed Bug	3	Fly Larvae	7	Silverfish	55
Bee	32	Flea	30	Scorpion	5
Bookmould	1	Lice (Pigeon)	9	Termite	170
Clothes Moth	2	Mosquito	3	Wasp	6
Cat	2	Nits	1	Weevil	3
Cricket	20	Possum	8		
Cockroach	324	Pigeon	71		
Cigarette		Red Back			
Beetle	3	Spider	239		

FOOD AND LIQUOR SECTION

Involvement in all facets of food and food handling continued to increase during the period under review.

Activities during the year included investigation of various foods for compliance with prescribed standards, processing methods and examination of premises and equipment, storage of dry and frozen foods, monitoring programmes and surveillance to prevent food borne disease outbreaks and special investigations relating to food and food poisoning outbreaks. All imported foods have been subjected to routine examination before release onto the market is permitted.

SPECIAL INVESTIGATION

Market Basket Survey

The survey of selected foods at specific seasons for a national determination of pesticide and metal residuals continued during 1980.

Poultry Processing Establishments

The Salmonella monitoring programme was continued during the year at the major processing establishments.

A marked improvement in standards of hygiene and processing has resulted including better control of stock at breeding and growing farms.

Information in the identification and recording of serotypes will be useful in establishing microbiological standards for ante mortem and post mortem condition of the birds.

Canned Fish Recall

Food poisoning in Tasmania caused by the eating of canned mackerel cutlets produced in Western Australia resulted in a total recall of the suspect batches of salmon and mackerel.

A total of 32,799 cans of fish were condemned and destroyed under supervision.

Departmental investigations identified this cause as the faulty sealing of the cans and suspect cooling water penetrating the cans during processing.

Food Vending Machines

Increased use of hot food vending machines has resulted in stringent conditions being insisted upon. European style machines submitted for approval do not generally meet with the standards demanded in Western Australia.

Imported Bulk Fish

The practice of importing bulk fish (unwrapped and without cartons) into Western Australia in freezer containers was introduced during the year. Although this is a method practised throughout the world, many problems were encountered and stringent requirements have been set for any future shipments to prevent contamination of the fish.

Chilled Oysters - Ex. New Zealand

Regular consignments of oysters from New Zealand were imported by air during the year.

Conditions of packaging and temperature control were of a high standard and no problems have been encountered with the product.

Health Education - Food Handling

The service giving advice in the form of lectures and films to various organisations has continued.

A pilot course for food handling supervision was initiated in liaison with Bentley Technical College.

A residential course on all facets of food matters was held at W.A.I.T. for Health Surveyors, which resulted in a good attendance and a wide range of lectures being delivered by experts in the various areas of the food industry.

Imported Foods

Examination of imported food is carried out at Fremantle Wharf, Perth Airport, Kewdale Depot and various premises receiving containers throughout the metropolitan area.

Samples submitted for analysis:-

Chemical	801
Bacteriological	834
	<hr/>
	1,635
	<hr/>

Condemnation of Fish and Food Unsuitable for Human Consumption

FISH (Frozen)

Oysters	4,500 Doz.
Squid	1,139.1 Kg.
Kingclip Fillets	19.5 "
Hake Fillets	55.1 "
Smoked Cod	93.9 "
Whole Bonito	28.6 "
Fish Fingers	6.2 "
Fish Burgers	2.0 "
Jon Dory Fillets	5.0 "
Schnapper	9.0 "
Raw Prawns	378.4 "
Cuttlefish Fillets	14.0 "
Alaskan King Crab Claw	1.6 "
	<hr/>
	1,752.4 Kg. & 4,500
	<hr/> Doz. Oysters

FISH (Canned)

Anchovies	18.2 Kg.
Mackerel Fillets	0.1
	<hr/>
	18.3 Kg.
	<hr/>

FISH	(Jarred)	
	Salted Crocker Fish	16.0 Kg.

FOOD	(Frozen Vegetables)	
	Hash Browns	90.0 Kg.
	Broccoli Spears	90.0 "
	Cauliflower	8.0 "
	Brussels Sprouts	40.8 "
	Mixed Vegetables	168.0 "
	Mustard Greens	81.8 "
	Peas	168.0 "
	Baby Okra	27.3 "
	Spinach	706.7 "
	Corn Kernels	6.5 "
	Strawberries	3.5 "
		<hr/>
		1,390.6 Kg.

FOOD	(General)	
	Dried Figs	1,009.6 Kg.
	Mung Beans	100.0 "
	Lentils	150.0 "
	Shelled Walnuts	200.0 "
	Dates	52,554.5 "
	Plum Sauce	6.0 Litres
	Olives	213.6 Kg.
		<hr/>
		54,227.7 Kg. & 6.0 litres

FOOD	(General and Frozen)	
	Cakes	231.8 Kg.
	Bread	76.0 "
	Sno Balls	3.0 "
	Danish Pastry (Cherry)	28.8 "
	Danish Pastry (Apple)	115.2 "
	Madera Cake	86.4 "
	Apple Crumble	144.0 "
	Cheese Cake (Strawberry)	27.2 "
	Fine Fair Cake (Apple)	360.0 "
	Asparagus and Ham Pie	4.8 "
	Onion Rings	1.5 "
	Turnip Greens	0.6 "
	Limp Beans	0.3 "
		<hr/>
		1,079.6 Kg.

<u>TOTAL CONDEMNED</u>	58,484.6 Kg. & 6.0 litres
	4,500 Dozen Oysters

TOTAL WEIGHT OF IMPORTED FISH INSPECTED

5,921,056 Kg. (1979 = 4,076,054 Kg.)

TOTAL FEES RAISED FOR INSPECTION

\$9,875.35 (1979 = \$6,821.74)

INSPECTION OF CONTAINERS OF FROZEN FISH DISCHARGED AT FREMANTLE WHARF

Wharf Office	
Fremantle and adjoining area cold stores	157
Head Office	
Perth and adjoining area cold stores	132
	<hr/>
TOTAL CONTAINERS	289
	<hr/>

Live Sheep Export

A total of 113 ships loaded live sheep for export to Middle East countries. This was an increase of 11 ships over 1979 figures. The wharf areas used were kept under strict surveillance to ensure that proper cleaning was maintained.

COMMONWEALTH/STATE LIAISON

Frozen Pre-Cooked Prawns

The introduction of a microbiological standard for frozen pre-cooked prawns resulted in the Commonwealth Department of Health conducting a sampling programme on imported prawns. This sampling procedure created an overlapping of duties between State and Commonwealth Departments of Health. Liaison between the Departments resulted in the State Public Health Division conducting all sampling and monitoring procedures in conjunction with the State Health Laboratories and the results forwarded to the Commonwealth Department of Health.

Wharf Handling Procedures

Containerisation has dramatically altered the discharge and handling methods of imported foods at wharfside. Conventional methods of refrigerated cargo discharge has almost been phased out and given way to the "seatainer" method.

The container method has proved far superior to the bulk handling method because of:-

- (a) Better temperature control
- (b) Reduced handling, damage loss
- (c) More efficient and faster method of unloading
- (d) More even distribution of cargo leaving wharf
- (e) Greater surveillance control.

Locations of inspection have been spread far beyond the wharf area and travelling time to these locations is considerable.

Food Handling Premises - Wharf Area

Kiosks - Port Beach

Commonwealth Hostels - Waterside Cafeterias

Passenger Terminal - Kiosk

Passenger Terminal - Function Centre.

Routine inspections of the above premises made and where required, food handling and minor structural recommendations made.

Waterside Toilets, Changerooms and Sheds

Premises regularly inspected. Generally satisfactorily and cleanly maintained.

LIQUOR

Inspections 1980	Metropolitan	Country	Total
Hotels	66	44	110
Taverns	40	20	60
Limited Hotels	7	3	10
Winehouses	5	1	6
Cabarets	1	2	3
Restaurants	40	10	50
Clubs	65	23	88
Royal Agricultural Society	10		10
	<hr/> 234	<hr/> 103	<hr/> 337

Summary of Spirits Inspected

Spirits Tested	Imported	Australian
Whisky	1,782	190
Brandy	39	497
Rum	560	360
Gin	317	230
Vodka/Ouzo	55	272
Sundry	266	39
	<hr/> 3,019	<hr/> 1,588

Various liquors submitted to the Government Chemical Laboratories for determination of spirit strength and "true to label" examination as follows:-

Whisky/Bourbon	Imp.	13
Brandy	Aust.	3
Brandy	Imp.	2
Rum	Aust.	1
Rum	Imp.	9
Gin	Imp.	1
Wine	Aust.	2
Cocktail Mix		1
Liqueur	Aust.	2
Beer	Aust.	2
		<hr/> 36 <hr/>

Complaints Investigated

The following complaints were investigated:-

Watered Adulterated Beer
Function Permit 1

Legal Action

Lack of Colouring in Drip Trays

Club - one case. Fined total \$145.

Below Standard Spirit

Hotel - one case Dismissed as first offender. One case adjourned.

PUBLIC BUILDINGS SECTION

Examination of proposals for public buildings continued throughout 1980 with 270 plan approvals issued.

Follow up inspections were made during construction, the metropolitan area being covered by officers attached to the Inspection Branch and the country areas by P.W.D. District Supervisors. The value of the above projects was \$32 million.

Roller skating rinks are the latest popular attraction and the Branch was involved in the establishment of twenty venues. Some of these were new buildings while some were conversions of existing buildings.

The criterion for estimating the capacity of these premises was not available, therefore it was necessary to negotiate and seek opinions from people associated with the industry in conjunction with Departmental investigations. The criterion which has been established appears in the short term to be satisfactory.

The competition to open first caused a rush and a tendency for some applicants to commence work with little regard for the requirements of the regulations. It was found necessary to issue a closure order on one

such premises and this had a steadying effect.

Six substantial projects relating to private hospitals and nursing homes were included in the approvals, the largest of which was St. John of God at Leederville.

Cinema City was opened during the year. This consists of four cinemas within a shopping arcade complex and is of particular interest because of the sophisticated fire prevention and control equipment.

Facilities for the disabled are provided and it is observed that more attention is being paid to this matter in recent projects.

Recommendations from P.W.D. engineers regarding the removal of hazardous features on public buildings in the earthquake area were forwarded to the relevant local authorities during the year. This caused some concern with buildings of historical interest, however it is understood that there has been further discussion with the engineers regarding possible alternatives.

Considerable advice has been conveyed to the public regarding the maintenance of swimming pools, particularly private pools. There appears to be more awareness of the necessity for adequate water treatment since the amoebic meningitis incident.

Officers of the Public Buildings Section continued with their involvement in lectures and talks in courses and public meetings as in previous years.

Electrical

In addition to electrical plan examinations and inspection at new projects throughout the year, inspections were made of the electrical installation in existing buildings.

With the opening of the new complex and other new buildings over the past few years the condition on the installation in most cinemas is now good.

Some older installations, although generally wired to regulation standards are now in need of upgrading. Instructions have been issued to have switchboards renewed in several buildings.

All cinemas were inspected over the past year.

All known night clubs and restaurants with entertainment in the metropolitan area were inspected with instruction for work issued at a number of buildings. A fire at the Civic Theatre Restaurant burnt out the switchboard and associated wiring. The overloading of sub-mains to the kitchen board appeared to have caused the fire. The theatre was evacuated without any problems as the fire was contained in the switchboard enclosure.

Local theatres, city hotels and taverns were also inspected and orders issued to upgrade wiring systems were issued when necessary.

MEAT INSPECTION AND ALLIED ACTIVITIES SECTION

MEAT INDUSTRY (GENERAL)

The meat industry has remained in a depressed state similar to that experienced over the past five years and has resulted in the closure of Anchorage Butchers, Coogee.

The only remaining abattoirs operating within the metropolitan area are the W.A. Meat Commission Robb Jetty and Watsons Foods (W.A.) Ltd., Hamilton Hill.

In a five year period there has been a steady decline in the percentage of stock slaughtered in the metropolitan area in relation to that slaughtered in country meat works. This trend would appear to be on the increase.

From projections provided by the Department of Agriculture there will not be any marked improvement in stock numbers available for slaughter until 1985.

Illegal slaughtering operations continued during 1980, with a number of operators being successfully prosecuted. Concern was expressed by the meat industry through the Meat and Allied Trades Federation at the extremely low penalties placed upon offenders. Although the Department of Health and Medical Services considered that the penalties were inadequate, this area does not come under the jurisdiction of this Department and other avenues to have this corrected are being explored by the meat industry.

Fortunately in some areas during 1980 there did appear to be a greater awareness of the severity of illegal slaughtering which culminated in heavier fines being imposed on a number of offenders. Steps were initiated during 1980 to have the appropriate legislation amended to allow farmers to slaughter animals for their own consumption on their properties, providing also that none of the meat was removed from the farm on which the slaughtering took place. The policy of the Department has always been to allow farmers to slaughter for their own use but the existing regulations make this an offence.

Involvement with the W.A. Lamb Marketing Board and the W.A. Meat Industry Authority has continued during 1980 with joint inspections being made of meat works throughout country areas.

A number of applications were received during the year to construct new meat works but none were constructed and work has ceased on the partially constructed abattoir at North Dandalup for Popes. This structure was commenced during 1979 and it was anticipated that it would be in operation in the early part of this year.

Karnet Rehabilitation Centre Meat Works and boning room are operating satisfactorily with a gradual increase in production to meet the demands of the corrective institutions throughout the State. A new freezer store has been completed and contracts have been signed to have all floors of the premises surfaced with an epoxy resin. This type of surfacing has proved far superior to the normal concrete surfacing in slaughtering

establishments.

The proposals to construct an abattoir in the Wanneroo area by D'Orsogna Bros. was rejected because the areas selected by the company were within a Water Reserve Area.

A property within the Shire of Swan is currently being considered for the proposed abattoir but only preliminary investigations have been completed.

ILLEGAL SLAUGHTER

Twenty six illegal slaughtering complaints were investigated throughout the year. Of these, five were successfully prosecuted, with one case being dismissed. Three prosecutions are pending. Warnings were issued to the remainder as insufficient evidence was available to warrant proceeding against the offenders. Surveillance in this area is continuing.

ABATTOIR INSPECTIONS

A total of 49 local abattoirs were in operation during 1980. Inspections of these premises totalled 150. The majority were visited three times during the year.

Most abattoirs visited had work schedules served upon them for non compliance with the Country Slaughterhouse Regulations.

Three abattoirs were ordered to close due to serious breaches of the regulations and remained closed until the necessary work was completed.

Goomalling Abattoir is the only abattoir that has remained closed and will not be considered for re-opening until all work has been effected to bring it up to the required standard.

MEAT INSPECTION

Departmental staffing at abattoirs has remained at 32 and it appears unlikely that there will be a need to increase this number for some time.

The country areas have the services of 63 Health Surveyors engaged on meat inspection at various degrees. Of these, 31 are engaged on full time meat inspection duties.

Continued surveillance was maintained during the year by Departmental officers to ensure a uniform standard throughout the State.

IMPORTS

The following meat and poultry were imported from other States:-

Lamb carcasses	9,785
Cartons Lamb	1,306
Cartons Beef	15,214
Pork carcasses	351
Pork pieces	12,589
Cartons pork	13,451
Cartons veal	143
Veal pieces	36
Cartons Chicken	2,820
Turkeys	12,995
Cartons Turkeys	648
Cartons Ducks	60
Cartons Smallgoods	469
Cartons Dripping and Lard	480
Cartons Kangaroo	4,568
Bulk Kangaroo	594 tonnes

LABORATORY

A total of 1,187 specimens were submitted to the State Health Laboratories of Bacteriological testing comprising:-

Faecal	111
Abattoir effluents	135
Hand wash (Meat workers)	230
Meat samples	118
Prepared food	21
Sausages	8
Sausage casings	171
Water	5
Equipment swabs	106
Carcase swabs	30
Pet meat	73
Pet meat carcase swabs	173
Meat meal	3
Thaw water	3

MEAT INSPECTION INQUIRY

An inquiry into the meat inspection systems throughout Australia culminated in a report being tabled by Messrs. Kelly and Buetell (Kelly Report). Although the recommendations of the report were not accepted by all States, the Australian Agricultural Council Standing Committee has set up working parties to investigate the fee structure applying to meat inspection and the administrative feasibility of the present meat inspection systems and alternative systems as demonstrated in the Kelly Report.

The Department of Health and Medical Services is represented on both working parties.

The recommendations from the working parties will be presented to the Standing Committee of the Australian Agricultural Council and the Federal Government in 1981.

ABATTOIR DATA

Registered local country abattoirs	49
Registered export abattoirs	13
Registered abattoirs with no meat inspection	11
New abattoirs	Nil

MEAT SLAUGHTER FIGURES FOR 1980 AT ABATTOIRS CONTROLLED BY THE DEPARTMENT OF HEALTH AND MEDICAL SERVICES, MEAT INSPECTION BRANCH

ANCHORAGE KILL FIGURES - JANUARY - DECEMBER 1980

Cattle	2,066
Calves	29
Sheep and Lambs	6,251
Goats	4,617
Cartons	6,862
TOTAL	19,825

KARNET KILL FIGURES - JANUARY - DECEMBER 1980

Cattle	1,035
Calves	Nil
Sheep and Lambs	4,846
Goats	Nil
Pigs	2,164
Cartons	Nil
TOTAL	8,045

WATSONS KILL FIGURES - JANUARY - DECEMBER 1980

Pigs only	232,248
-----------	---------

ROBBS JETTY KILL FIGURES - JANUARY - DECEMBER 1980

Cattle	25,537 local) 80,705 export)	106,242	TOTAL
Calves	1,050 local) 1,787 export)	2,837	TOTAL
Sheep & Lambs	195,289 local) 718,620 export)	913,909	TOTAL
Goats	204 local) 54,355 export)	54,599	TOTAL
Pigs	Nil		
Cartons	Nil		

FISHING INDUSTRY

The draft of regulations applying to the transport of fish is reaching finality. Discussion with representatives of the Australian Fishing Industry Council has resulted in amicable agreement being reached. The regulations should be promulgated in the near future. It is intended that further regulations regarding fish handling premises will follow.

LAND USAGE AND SPECIAL RESEARCH

TOWN PLANNING - LAND APPRAISALS

The number of land appraisals on behalf of the Town Planning Board are as follows:-

Metropolitan	366
Country	148

Country figures include major subdivision in Yunderup, Margaret River, Donnybrook, Denmark and Boyup Brook.

The number of land appraisals made throughout the last three years is somewhat lower than previous periods but while there has been a decrease in the number of requests received, the time factor on inspections has increased as the majority of proposals now involve large areas of land and accordingly require a great deal more time for appraisal.

In addition to Town Planning Board requests to examine sub-divisional proposals, there has been a steady increase in requests for Departmental investigations of appeals made to the Hon. Minister for Town Planning. These appeals mainly relate to the suitability of areas for on-site effluent disposal means or the need for deep sewerage.

SEPTIC TANKS

The number of applications approved for installation of septic tanks increased during the year by 526 over 1979 approvals (321 metropolitan, 205 country).

Applications approved	-	6,076 comprising:-
		3,301 Metropolitan
		2,775 Country

Fibreglass Septic Tanks

A decline in the use of septic tanks constructed of fibreglass was noted during 1980. A total of 23 permits were issued for installation, which is a decrease of 10 over 1979 approvals.

The limitations in use and rising costs were the contributing factors in their decline in popularity.

COMMUNITY WASTE PLANNING SECTION

The Western Australian Waste Disposal Advisory Committee and its supporting Technical Committee met regularly throughout the year. The Committees examined or made recommendations in respect to various methods of treatment or disposal of community wastes.

Further improvements have been achieved in the operation and management of sanitary landfill sites operating within the metropolitan area.

The City of Stirling closed its sanitary landfill site at Hertha Road and opened a baling plant in Balcatta. This facility is the first sophisticated method of handling rubbish introduced into this State. A balefill site was approved incorporating ground water monitoring bores and a test cell installed for assessing leachate characteristics.

The Shire of Bayswater received approval to operate a sanitary landfill site in the Redhill area. Initially this site will be used by Bayswater and eventually operate as a regional refuse disposal site for the member local authorities of the Eastern Refuse Disposal Zone.

The North West Zone is planning a co-operative venture with the acquisition of a large area of land north of Wanneroo for future refuse disposal purposes. An environmental management plan is currently being prepared for possible development of the area.

A high temperature incinerator, capable of disposing of toxic wastes, was approved and is at present being tested and monitored. This is a much needed facility and will dispose of these difficult wastes in an environmentally acceptable manner.

The disposal of septic tank effluents and other industrial liquid wastes still remains a serious and urgent problem. The Technical Committee set

up a special working party to investigate liquid and solid wastes from industrial and commercial operators. A survey questionnaire is being prepared and will be sent to all producers of waste. The results of this survey will enable the Technical Committee to assess the liquid waste problem and methods required to handle and dispose of them.

The industrial waste exchange has been operating for just over 12 months with great success. More than 100 exchanges of materials, otherwise to be discarded, have taken place. Industries have responded very well to the scheme and the exchange is providing a very worthwhile avenue for the recovery of materials.

APPENDIX I

DETAILS OF OTHER ROUTINE AND SPECIAL INVESTIGATIONS CONDUCTED DURING THE YEAR

1. Investigations of statutory appeals and complaints made to the Commissioner of Public Health.

Appeals	176
Complaints	703

2. Regular inspection of all food handling premises under the control of State Government Authorities.
3. Regular inspection of caravan parks throughout the State.
4. Regular inspections of travellers' accommodation on the Eyre Highway.
5. Attendance at meetings and conferences on behalf of the Commissioner of Public Health, both locally and interstate. Lecturing of Environmental Health students, nurses and various formal and informal groups.
6. Continuing activities commenced in previous years.
 - (a) Regular sampling of ocean water, metropolitan beaches and the Swan, Helena and Canning River systems and environmental sampling for salmonella organisms in selected metropolitan lakes.
 - (b) Regular sampling of community water supplies not under direct control of the Metropolitan Water Board and Country Water Supply.
 - (c) Continual examination of all water sample results supplied by the State Health Laboratory Service with trace back and remedial measures being instituted where necessary.

Routine Water Sampling Activities include:-

Ocean Samples	(Coliform) (Salmonella)	1,346
Lake Samples	(Coliform) (Salmonella)	174
River Samples	(Coliform) (Salmonella)	682

Miscellaneous Samples:-

Abattoir Samples	116
Domestic Water Supplies	214
Public Swimming Pools	230
	<hr/>
	2,762

APPENDIX II

METROPOLITAN FLY CONTROL PLANNING COMMITTEE

SUMMARY OF 1980/81 CAMPAIGN

REPORT ON FLY CONTROL PROGRAM

LOCAL AUTHORITIES PARTICIPATING 9

FLY CONTROL OFFICERS EMPLOYED 19

Premises Visited	25,411
Premises Inspected	18,442
Premises Breeding Flies	796

BREEDING SITES

Rubbish bins	269	32.37%
Buried food wastes	50	6.01%
Poultry keeping	113	13.59%
Incinerators	12	1.44%
Mulch	23	2.76%
Compost heaps	151	18.17%
Blood and bone	4	.48%
Animal manure	19	2.28%
Fowl manure	36	4.33%
Lawn clippings	136	16.36%
Other	18	2.16%

COMPARATIVE FIGURES OF BREEDING

1961/62	22.3%	1968/69	9.0%	1975/76	4.8%
1962/63	23.5%	1969/70	8.1%	1976/77	5.0%
1963/64	10.0%	1970/71	7.9%	1977/78	5.3%
1964/65	10.0%	1971/72	6.7%	1978/79	4.1%
1965/66	9.4%	1972/73	5.0%	1979/80	3.7%
1966/67	7.9%	1973/74	6.0%	1980/81	4.3%
1967/68	6.7%	1974/75	4.5%		

FLY CONTROL CAMPAIGN 1980/81

COMPARISON WITH 1979/80 - BOTH PHASES

LOCAL AUTHORITY	NO. OF PREMISES INSPECTED		NO. OF PREMISES BREEDING FLIES		% OF PREMISES BREEDING FLIES	
	1979/80	1980/81	1979/80	1980/81	1979/80	1980/81
CITY OF CANNING	1,330	995	46	36	3.5%	3.6%
CITY OF FREMANTLE	2,984	2,403	116	47	3.9%	1.9%
CITY OF NEDLANDS	3,666	973	30	28	0.8%	2.9%
CITY OF SOUTH PERTH	938	1,598	16	94	1.7%	5.9%
CITY OF SUBIACO	417	4,046	10	186	2.4%	4.6%
TOWN OF COTTESLOE	2,334	1,377	55	7	2.4%	0.5%
TOWN OF EAST FREMANTLE	1,151	889	104	46	9.0%	5.2%
SHIRE OF ROCKINGHAM	5,537	4,119	162	193	2.9%	4.7%
SHIRE OF WANNEROO	2,224	2,042	130	159	5.8%	7.8%

COMMENT

The relatively low number of local authorities who participated in the 1980/81 campaign is undoubtedly due to a proposed alternative fly control campaign based on mass media publicity. Said proposal was submitted to Metropolitan Local Authorities prior to the commencement of the traditional Spring/Summer phase of the campaign. While a number of councils have indicated interest in the alternative, it has resulted in a negative influence in terms of the traditional campaign.

STATISTICAL SUMMARY OF ANNUAL FLY CONTROL CAMPAIGN

YEAR	METRO- POLITAN	COUNTRY	NO. OF VACANCIES	TOTAL NO. OF WEEKS	NO. OF PREMISES INSPECTED	NO. OF PREMISES VISITED	NO. OF PREMISES BREEDING FLIES	% OF PREMISES INSPECTED BREEDING FLIES	NO. OF BREEDING PLACES FOUND
1969/70	14	1	41	327	40,643	52,688	3,303	8.1%	3,481
1970/71	16	1	35	343	51,121	61,080	4,050	7.9%	4,539
1971/72	16	-	35	440	66,487	75,895	4,477	6.7%	4,737
1972/73	16	-	42	564	75,133	86,051	3,728	5.0%	4,066
1973/74	15	1	41	564	69,787	76,750	4,154	6.0%	4,369
1974/75	16	-	51	625	78,504	89,051	3,545	4.5%	3,818
1975/76	14	-	40	551	61,419	70,350	2,938	4.8%	3,140
1976/77	13	-	40	533	61,167	68,199	3,042	5.0%	3,278
1977/78	14	-	37	521	61,127	68,270	3,222	5.2%	3,519
1978/79	13	-	36	541	62,157	73,372	2,561	4.1%	3,067
1979/80	14	-	27	282	39,500	50,805	1,480	3.7%	1,540
1980/81	9	-	19	150	18,442	25,411	796	4.3%	831

FIGURES B/FWD.
FROM 1968/69

SUMMARY OF RESULTS

METROPOLITAN FLY CONTROL CAMPAIGN - 1980/81

LOCAL AUTHORITY	NO. OF PERSONS EMPLOYED	TOTAL TIME OF EMPLOYMENT (WEEKS)	NO. OF PREMISES VISITED	NO. OF PREMISES INSPECTED	NO. OF PREMISES WHERE BREEDING PLACES FOUND	RUBBISH BINS	BURIED FOOD WASTES	POULTRY KEEPING	INCINERATORS	MULCH	COMPOST HEAPS	BLOOD AND BONE	ANIMAL MANURE	FOWL MANURE	LAWN CLIPPINGS	OTHER
CITY OF CANNING	1	13	1,850	995	36	36	3	-	2	-	5	-	3	-	20	-
CITY OF FREMANTLE	3	14	3,881	2,403	47	69	6	12	3	8	8	3	2	4	8	11
CITY OF NEDLANDS	1	19	* 973	973	28	28	7	-	-	-	21	-	-	-	-	-
CITY OF SOUTH PERTH	2	18	1,730	1,598	94	107	71	6	1	1	2	-	3	4	13	-
CITY OF SUBIACO	5	25	4,256	4,046	186	186	18	22	-	-	38	-	-	-	19	-
TOWN OF COTTESLOE	1	6	2,451	1,377	7	7	-	1	2	1	1	-	1	-	1	-
TOWN OF EAST FREMANTLE	1	5	1,471	889	46	46	2	3	9	1	17	1	3	2	6	-
SHIRE OF ROCKINGHAM	3	18	4,611	4,119	193	193	69	5	2	2	15	-	5	16	27	7
SHIRE OF WANNEROO	2	32	4,188	2,042	159	159	93	1	-	-	14	-	2	7	42	-
TOTAL	19	150	25,411	18,442	796	831	269	50	113	12	151	4	19	36	136	18

*City of Nedlands did not record "Number of Premises Inspected" so "Number of Premises Visited" inserted so as not to prejudice overall figures.

APPENDIX III

FOOD COMPLAINTS
1ST JANUARY 1980 TO 31ST DECEMBER 1980

Baby Food	6
Beer	1
Biscuits (Dry)	6
Biscuits (Sweet)	4
Bread	28
Cakes, Pastries, Puddings (Including Mixes and Icings)	12
Cereals	9
Cheese & Cheese Products	6
Coffee	3
Confectionary	15
Cooldrinks	7
Drinks	4
Fish and Fish Products	37
Flour Products	3
Food Poisoning	47
Food Premises	40
Fruit (Canned)	9
Fruit (Dried)	1
Fruit (Fresh)	8
Fruit Juice	9
Ice Cream & Associated Products	7
Jam	4
Meat and Meat Products	22
Milk and Milk Products	27
Nuts	7
Pies, Pasties & Sausage Rolls	23
Poultry & Poultry Products	15
Salads	2
Sandwiches & Rolls	11
Soup	1
Spreads	3
Take Away Foods	17
Toppings	3
Vegetables (Canned)	2
Vegetables (Fresh)	12
Vinegar	3
Water	1
	<hr/>
TOTAL	415
	<hr/>

BACTERIOLOGICAL SAMPLES - 1980

FOOD	NO.
Cheese Cake	10
Chinese Meals	30
Fish	61
Fruit Pie	1
Herbal Medicine	1
Infant Food	3
Meat and Meat Products	98
Milk and Milk Products	2
Pizza	11
Poultry and Poultry Dishes	78
Poultry - Giblets	3
Poultry - Livers	43
Poultry - Necks	46
Sandwiches	2
Shellfish	33
Spaghetti and Macaroni	11
Vegetables	7
TOTAL	440

CHEMICAL SAMPLES - 1980

FOOD	NO.
Barley - Germinated	2
Barley - Kiln Dried	2
Barley - Raw	2
Beer	7
Bread	2
Cake	2
Cake Mix	1
Carbonated Drinks	1
Cereal	1
Coffee	1
Confectionary	3
Cordial	3
Fish	115
Food Additives	19
Fruit	8
Fruit Juice	27
Human Milk	20
Meat and Meat Products	55
Milk and Milk Products	2
Molasses	1
Non Alcoholic Tonic	1
Nuts	6
Peanut Paste	5
Pheasant	2
Port	1
Sauce	1
Sesame Seed	1
Shellfish	47
Soup	1
Vegetables	11
Water	2
White Rum	1
Wine	7
	<hr/>
TOTAL	360

MISCELLANEOUS SAMPLES - 1980

BACTERIOLOGICAL	NO.
Faeces	40
Rainwater Tank - Water	1
Swimming Pool Water	1
POULTRY PROCESSING ESTABLISHMENTS (BACT.)	
Apron - Swab	1
Band Saw - Swab	1
Bird Grading Chute - Swab	1
Bird Hanging Frame - Swab	5
Chain Evisceration Belt - Swab	3
Chiller Wall and Stand - Swab	1
Cloacal Cutter - Swab	3
Cloacal Swabs	1,230
Conveyor Belt - Swab	2
Conveyor From Leg Cutter - Swab	3
Conveyor Process Area - Swab	3
Crate Washing Sump Effluent	2
Cutter Process Area - Swab	4
Endless Belt - Swab	1
Evisceration Puller - Swab	1
Evisceration Table - Swab	4
Feather Meal	2
Feather and Offal Strainer - Swab	1
Final Effluent	45
Final Effluent - Swab	4
Final Process Chain - Swab	1
Floor Drains - Swab	5
Giblett Wash - Swab	1
Hanging Frame Evisceration Area - Swab	1
Human Hand Wash	18
Leg Cutter Chute - Swab	1
Liver Packing Bench - Swab	1
Liver Washer - Swab	3
Load in Area - Swab	2
Bird Grading Table - Swab	1
Meat Meal	8
Mixing Pit Effluent - Swab	2
Neck Cutter - Swab	1
Packing Area Table - Swab	1
Post Evisceration Drain - Effluent	47
Post Evisceration Drain - Swab	46
Scald Tank Drain - Swab	1
Scald Tub - Swab	1
Spin Chiller Chute - Swab	1
Spin Chiller - Effluent	52
Spin Chiller - Swab	52
Spin Chiller Wash Water	1
Wrapping Machine - Swab	1
TOTAL	1,607

MISCELLANEOUS SAMPLES

CHEMICAL	NO.
Beer Bottle	1
Bore Water	5
Cosmetics	1
Dishwashing Liquid	1
Dog Vomitus	1
Drink Coolers	1
Effluent	4
Foam Crumb	1
Foreign Object	1
Glue	1
Human Muscle Tissue	2
Human Renal Fat	2
Ice Mould	1
Leachate	2
Meat Tenderizer	2
Painted Wine Bottle	1
Painted Wooden Beads	1
Pesticide	3
Pheasant Egg	12
Pieces of Wooden Crate	1
Plastic Drinking Receptacle	4
Plastic Food Wrappers	4
Potable Water	9
Pyramid Tree	1
Seepage Ex. Refuse Site	1
Self Warming Food Containers	1
Septic Tank Effluent	17
Solvent	1
Steam Boat Toy	1
Styrene Crumb	1
Sump Water	3
Swamp Water	9
Swimming Pool Water	3
Sykes Hydrometer	2
Unknown Object	1
Wallaby Flesh	1
Wallaby Leg	1
TOTAL	104

FOOD AND NUTRITION SECTION



SENIOR STAFF

Food & Nutrition Officer: Mr. J.R.
Edinger

J.R. Edinger,
B.Sc. A.R.A.C.I.
Food and Nutrition Officer

FOOD AND NUTRITION SECTION

1. GENERAL COMMENT:

- 1.1 The acceptance of the final draft of the Australian Uniform Food Act at the Health Ministers Conference is indeed a historic milestone in food legislation.

The Act will be submitted to Parliament for approval in 1981.

Work on the uniform Food Regulations made under the Uniform Act has proceeded well and probably will be incorporated into all State legislation in 1982.

The formation of the uniform Food Hygiene Regulation is proceeding more slowly and it is obvious that over a considerable period of time different requirements and attitudes by the various States arising from different necessities, presents a complex situation.

- 1.2 The regulations for date marking, ingredient labelling and lot identification were gazetted in May 1980 but not to be operative until May 1981. This will allow industry to make the necessary labelling alterations and to install suitable machinery for date marking.

Where date marking is concerned the popular choice by industry is the "USE BY" date. This has involved an accurate assessment of the durable life of the range of food products.

Ingredient labelling has posed many problems and it will take some considerable time to rationalise listing requirements.

Lot identification has received some adverse re-action. When it has been explained to industry that it is in their best interest to be able to identify a single batch or lot in the case of a faulty product, rather than what may eventually turn out to be total condemnation and destruction of the complete stocks, then opposition waned.

Product recall procedures are now being installed by most major manufacturers and copies lodged at the Department.

Without satisfactory lot identification such an operation could not be effectively achieved.

Seminars were attended conducted by the W.A. Food Technology Association, The Meat and Allied Trades Federation and C.S.I.R.O. on date marking and ingredient labelling.

At the December meeting of the Food and Drug Advisory Committee an extra six months extension of the operative date for date marking, ingredient labelling and lot identification was granted to industry. The operative date will now be 16 November 1981.

- 1.3 The introduction of a label advisory service incorporating a standard check sheet has been of tremendous help to industry. With the advent of date marking and ingredient labelling, hundreds of labels were submitted for checking. This has placed an additional heavy work load on all concerned.
- 1.4 The question of a standardised powdered drink base containing added Vitamin C was considered by the Food and Drug Advisory Committee. As such products contravened the Food and Drug Regulations, sale of such products was banned in W.A.

Such action was responsible for an Australian wide investigation of vitamins and minerals added to foods.

A combined meeting of the National Health and Medical Research Council Food Standards Committee and the National Therapeutics Goods Committee in April decided that new Standards be evolved for the various categories of vitamin and mineral products.

- 1.5 Throughout the year meetings were attended interstate and in the A.C.T. of the National Health and Medical Research Council Food Legislation Committee, the Working Party on Model Food Regulations and Food Hygiene and the National Therapeutics Goods Committee.

Interdepartmental meetings were attended on problems arising from the Multilateral Trade Negotiations and the Standards associated with them (M.T.N. Standards).

- 1.6 Problems associated with desiccated coconut from the Philippines and not encountered since 1975 arose and the suppliers advised of action to take to remedy the situation which resulted in a satisfactory conclusion.

2. SAMPLING PROGRAMMES, INVESTIGATIONS AND ALLIED WORK:

As previously, the normal routine sampling of foods locally, and imported was carried out by the Inspection Branch. A total of 2407 samples was examined chemically and bacteriologically. Full details are given in the various appendices in the report of the Chief Health Surveyor under the Food and Liquor Section.

Other items of particular interest are detailed hereunder.

2.1 PESTICIDES AND TOXIC RESIDUES IN FOOD SURVEYS

The "Market Basket Survey" was conducted using State and Commonwealth Officers to purchase samples of food as specified in the National Health and Medical Research Council's list.

This is carried out on a quarterly basis.

2.2 ORANGE JUICE AND ORANGE FRUIT JUICE DRINKS

The normal sampling procedures were continued as in previous years.

Local manufacturers' samples were found to be up to the required standard.

Some products of Eastern States origin were found to be sub-standard and the sale prohibited in W.A. In each case the suppliers were informed and given an opportunity to bring their product up to the required Standard.

- 2.3 Mussels, fish and crabs in Cockburn Sound were examined for heavy metal content. The results were satisfactory.
- 2.4 Canned fish presented a major problem. The factory was inspected and the fault detected which had resulted in contaminated cans causing food poisoning. The faulty batches of cans were destroyed.

3. FOOD REGULATIONS:

- 3.1 Four meetings of the Food and Drug Advisory Committee were held during the year.
- 3.2 The following items received special consideration.

Date Marking as applied to "Wine Casks".
Calorie Reduced Bread
'High Fibre' Bread
Microbiological Standard for Minced Meat
Fees for Analysis
Standard for Low Joule Foods
Standard for Foods for Specific Dietary Use
Sulphur dioxide in minced meat
De-caffeinated coffee
Alcohol labelling of spirituous beverages
Microbiological Standard for pre-cooked frozen foods
Reduced alcohol liquors

- 3.3 The following regulations and amendments to regulations were gazetted.

A.07 Pesticide Residues
A.01 Date Marking
A.01 Ingredient Labelling
A.01 Lot Identification
Meat Branding Regulations

- 3.4 The following legislation is at drafting stage with Parliamentary Council.

Food Act (New)
H.07 Condensed Milks
O.06 Peanut Butter or Peanut Paste
G.07 Beverage Whitener
K.03 Cocoa
K.04 Chocolate and Liqueur Chocolate

4. APPRECIATION:

My thanks are tendered to the Chief Health Surveyor and all his staff and in particular Mr. G. Kaiser for his dedicated assistance.

Also, throughout the year, the advice and assistance of the Director, Government Chemical Laboratories and his staff has solved many of the problems associated with product complaints and sampling plans.

Appendix XVII
STATISTICS BRANCH

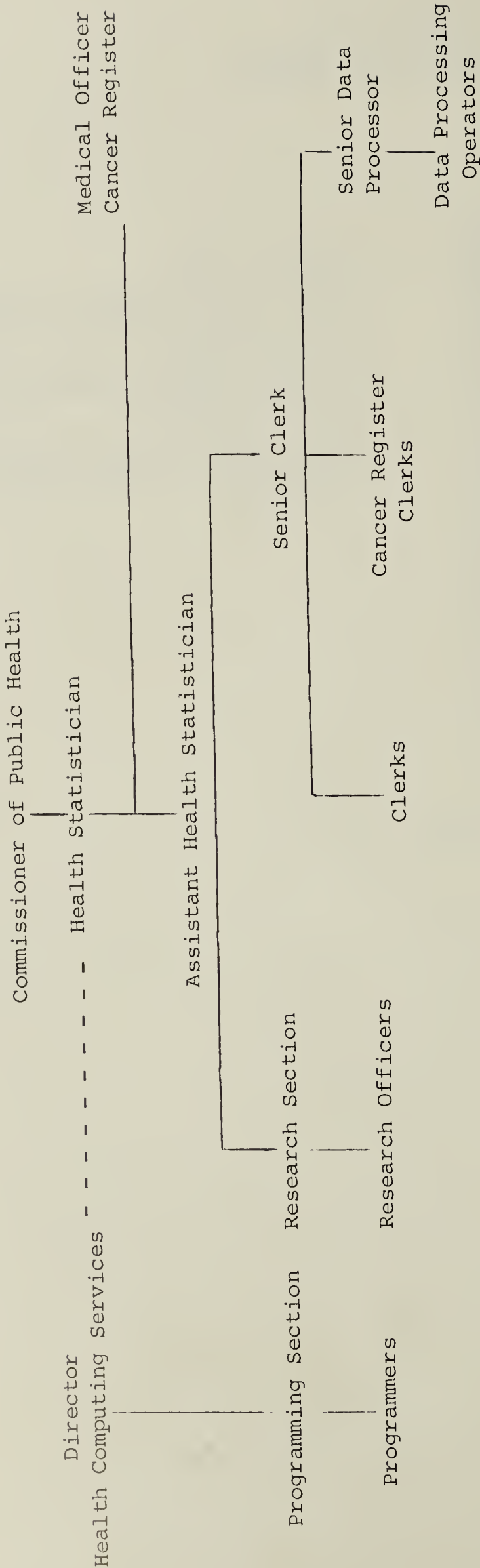


M.M. Lugg,
M.T., B.Sc., M.Sc., Sc.D., M.P.H.,
Dr.P.H., F.H.A., F.A.P.H.A., F.R.S.H.
Health Statistician

SENIOR STAFF

Health Statistician: Dr. M.M. Lugg
Medical Officer, Cancer Register:
Dr. W.M. Hatton
Assistant Health Statistician: Mr.
M.J. Hartfield
Senior Clerk: Mr. L.L. Cassidy
Senior Data Processor: Mrs. E.
Clydesdale

STATISTICS BRANCH - ORGANIZATION CHART



STATISTICS BRANCH

As a result of the Australian Bureau of Statistics' policy of withdrawing from large scale health related data collections, this Branch in 1980 assumed full responsibility for the operation of the Midwives Data System. The phased handover of the hospital morbidity system is continuing in order to accept full responsibility for this system on January 1, 1981. The Australian Bureau of Statistics, Perth, is actively assisting the Branch with the design and implementation of the new system through the secondment of one of their senior officers, Mr. Bob Hunter.

An intensive review of objectives and operations has been carried out by officers within the Branch in order to rationalise its manpower resources with a minimum of new staff positions associated with the takeover of those functions previously performed on our behalf by the Australian Bureau of Statistics. The Commissioner of Public Health, requested a private management consultant firm to review the Branch's operations and the resulting report supported the Branch's current and planned operations.

Delays in filling vacancies and in creating the new required positions are causing a backlog of work which will delay availability of 1980 and 1981 Hospital Morbidity and Midwives' data.

Production of The Health Statistics Series announced in the last annual report will be delayed into next year, with the exception of "Series P, Psychiatric Care Data Annual Tables", which have been produced for 1977-78 and 1978-79.

HOSPITAL MORBIDITY SYSTEM

The revised hospital discharge form has now been implemented in all non-teaching hospitals including the private sector, with some general improvement in the quality and clarity of data. From January 1, 1980 both Royal Perth Hospital and King Edward Memorial Hospital adopted a computerised method of providing morbidity data through an enhancement to the Admissions, Transfers and Separations (A.T.S.) system. It is planned to extend this system to the remaining teaching hospitals by 1982, so that one-third of the total information will be received as a by-product of A.T.S. systems, thus reducing the need for additional clerical staff in that area.

Programming staff are proceeding with system design and documentation to enable the Branch to commence processing of hospital morbidity data towards the middle of 1981.

Due to staff shortages at both the Statistics Branch and the Australian Bureau of Statistics, the 1980 hospital morbidity data will not be available until late 1981, so no summary of discharge or operation rates is available for this report. This information will be incorporated into the health statistics hospital morbidity series when available.

MIDWIVES DATA COLLECTION SYSTEM

The new Midwives Data Processing System has been implemented and processing of 1979 data (a transition year between Australian Bureau of Statistics processing and Public Health Division processing) completed satisfactorily. Delays in the filling of clerical coding positions has caused some backlog in the processing of 1980 data.

In order to improve the quality of the information, Community and Child Health Services have temporarily provided a qualified midwife, Sister Joan Bedford, to monitor the forms for any errors or inconsistencies. This has proved invaluable and has resulted in vastly improved reporting over the twelve month period. The continuing assistance of Dr. Fiona Stanley of the National Health and Medical Research Council Research Unit in Epidemiology and Preventative Medicine has also contributed significantly to the quality of information collected. The Congenital Malformations Register run on behalf of the Public Health Department by Dr. Stanley is a major user of data from the Midwives System.

CANCER REGISTER

The appointment of a full-time medical officer, Dr. Michael Hatton, MBBS., DPM., MSc., has enabled a careful review of the Register's operation to be carried out. Changes to the basis for cancer notifications are planned with appropriate legislative amendments to be implemented during 1981. Programming staff have also been appointed to review the current system operation and are preparing a system design specification for the Registry. As part of the review process, Dr. Hatton visited cancer registries in New South Wales, Victoria and South Australia.

CO-OPERATION WITH OTHER BRANCHES AND OUTSIDE ORGANISATIONS

MENTAL HEALTH SERVICES

Statistics Branch research officers are continuing to oversee the operation of the Mental Health Statistical Research Unit. The Mental Health Register is to be reviewed and the computer system redeveloped to improve the accessibility of the data contained therein. A shortage of manpower resources has delayed completion of the 1979-80 volume of the "Psychiatric Care Data Annual Tables". More detailed information on these activities is available in the Report of the Director of Mental Health Services.

MEDICAL AND NURSING MANPOWER

The short-form Nurses' Survey and computerized addressing of re-registration forms was carried out for the Nurses Registration Board. The long-form survey form (used every three years) has been revised for use in conjunction with the 1981 re-registration. Assistance was given to Mrs. S. Campbell of C.M. Campbell Associates in her nursing manpower study.

GENERAL

A major part of the Statistics Branch activities is associated with the analysis of information either collected on a routine basis (eg. Hospital Morbidity) or special *ad hoc* surveys. The analysis of this information plays an integral role in the planning of health services within this State. Numerous requests for assistance are received from hospitals, doctors, Government Departments and other organisations.

Within the Public Health Division, special assistance was given to the Road Traffic Accident Working Party, the Special Clinic, and the Committee on the Monitoring of the Advertising of Tobacco Products, on proposed data collections and/or analysis.

The Statistics Branch worked closely with the Health Education Unit in the development of a survey to ascertain the public's knowledge of amoebic meningitis prevention before and after a State-wide education campaign. The Health Statistician assisted with survey design, trained all the interviewers and handled data processing requirements.

During this year, the Health Statistician was appointed to the Food Service (Food Handling) Training Committee, the Health Education Unit Future Planning Working Party, and assisted the Health Education Unit with interviewing prospective research officers on several occasions.

OTHER ITEMS OF INTEREST

The Branch continues to participate in the development of health policy and information systems at National, State and Departmental level. The Health Statistician continues to serve on the National Committee on Health and Vital Statistics, the State Statistical Requirements and Co-ordinating Committee, and was appointed by the Hon. Premier as State Health Liaison with the Commonwealth Social Welfare Policy Secretariat on the matter of recommendations of the Baume Committee Report "Through A Glass Darkly - Evaluation in Australian Health and Welfare Services".

The Health Statistician continued to serve on the Board of Advisory Consultants for the Department of Home and Consumer Studies at the Western Australian Institute of Technology, and supervises research projects for nursing students at W.A.I.T. and medical students from the University of Western Australia. She has also been appointed to the Education Committee of the Western Australian State Branch Council of the Australian Institute of Health Service Administrators and presented a paper on the "Uses of the Western Australian Cancer Register" to the Symposium on Cervical Cancer, sponsored by the King Edward Memorial Hospital Post-graduate Research Foundation.

The Assistant Health Statistician attended a workshop at the National Perinatal Statistics Unit in November as part of the development of a National monitoring system for congenital malformations.

The Statistics Branch continued to be one of the more advanced in Australia in the development of health related data collections. The development of these data bases provide a sound basis on which health planning policies can be developed. Advice and assistance in the development of other States'

data systems has been given through the National Committee on Health and Vital Statistics and on specific request. Most notable this year was the assistance with procedure and policy planning for Sir Lance Townsend, who will shortly begin a midwives data system for Victoria, based mainly on that in operation in Western Australia.

The Branch contributed to the Health Division's submission to the Commission of Inquiry into the Efficiency and Administration of Hospitals; the Health Statistician appeared as a witness and later critically reviewed several papers as requested by the Commission.

The resignation of Mrs. C.E. Chapman, Assistant Health Statistician, was much regretted. Mrs. Chapman, who resigned to enter the private business sector, greatly helped develop the Statistics Branch's research section. Mr. Michael J. Hartfield, Senior Research Officer, was promoted to fill this position in May of this year.

My sincere gratitude goes to Statistics Branch Officers who have maintained work schedules during a year of increased responsibilities, in spite of staff shortages. Apologies must also go to all those health and hospital officers who were inconvenienced by the unavoidable delays in data production which were caused by those staff shortages. Hopefully the next year will see adequate staff to cope with the Branch's much increased responsibilities.

Diseases Notifiable	1977		1978		1979		1980	
	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths
Amoebiasis	5	-	4	-	5	-	6	N/A
Ancylostomiasis	17	-	4	-	1	-	-	-
Anthrax	-	-	-	-	-	-	-	-
Bacillary Dysentery	113	-	122	-	163	1	87	-
Bilharziasis	-	-	-	-	-	-	-	-
Brucellosis	1	-	-	-	1	-	3	-
Cholera	-	-	1c.o.s.	-	-	-	-	-
Diphtheria	-	-	-	-	-	-	-	-
Encephalitis Lethargic	-	1*	3	-	3	-	-	-
Filariasis	-	-	-	-	-	-	-	-
Homologous Serum Jaundice	9	-	42	2	30	2	16	-
Hydatid	1	1	-	-	-	-	-	-
Infective Hepatitis	211	2	260	1	127	1	227	-
Leprosy	17	-	15	1	12	-	9	-
Leptospirosis	-	-	1	-	1	-	9	-
Malaria	24c.o.s.	-	32c.o.s.	-	35c.o.s.	-	50c.o.s.	-
Meningococcal Infection	3	-	1	5	1	1	-	-
Ornithosis	1	-	1	-	1	-	-	-
Paratyphoid	1	-	2	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-
Poliomyelitis	-	1	-	-	-	-	-	-
Puerperal Fever	-	-	3	-	1	-	-	-
Relapsing Fever	-	-	-	-	-	-	-	-
Salmonella Infection(A)	247	-	194	1	451	2	219	-
Scarlet Fever	11	-	21	-	6	-	3	-
Small Pox	-	-	-	-	-	-	-	-
Tetanus	1	-	-	-	-	1	-	-
Tuberculosis	155	10	165	15	179	11	167	-
Typhus Fever	-	-	-	-	1	-	-	-
Typhoid Fever	-	-	3	-	4	-	4	-
Yellow Fever	-	-	-	-	-	-	-	-

C.O.S. - Contracted out of State
 *Dawsons Encephalitis.

(A)Other Salmonella Infection

DERBY LEPROSARIUM
ADMISSIONS AND DISCHARGES FOR 1980

MONTH	ADMISSIONS							DISCHARGES							Inmates Remaining in Lepros.		TOTAL MALE & FEMALE	
	MALE			FEMALE				MALE			FEMALE							TOTAL MALE & FEMALE
	Ad- mitted	Re-ad- mitted	Total	Ad- mitted	Re-ad- mitted	Total	TOTAL MALE & FEMALE	Dis- charged	De- ceased	Ab- sconded	Total	Dis- charged	De- ceased	Ab- sconded	Total			
JAN.		6	6		1	1	7									16	13	29
FEB.	1		1		1	1	2					1	1			17	13	30
MARCH						1	1					3	3			11	11	22
APRIL		2	2		1	1	3									13	12	25
MAY		2	2		1	1	3									13	13	26
JUNE	1	1	2				2									15	13	28
JULY						2	2					1	1			15	14	29
AUG.		1	1		2		1					2	2			12	12	24
SEPT.							1									12	13	25
OCT.		1	1		1	1	2					1	1			13	13	26
NOV.		1	1		1	1	2					1	1			13	13	26
DEC.		1	1				1					1	1			10	12	22
TOTAL	2	15	17	4	6	10	27					17	10					

ANAESTHETIC MORTALITY COMMITTEE REPORT

Chairman, Dr. T.M. McAuliffe

CASES CONSIDERED BY THE COMMITTEE IN 1980

Case 1.

This anaesthetic was given to a 15 year old male who was scheduled for the removal of an acoustic neuroma. The patient deteriorated rapidly after five hours of surgery and he died in the operating theatre.

The Committee was unable to find any significant fault with the conduct of the anaesthetic. It did feel that the anaesthetic record was inadequate.

Case 2.

The patient was a 49 year old aboriginal male who had a cataract extraction at the Dampier Hospital. His pre operative condition was poor. Death occurred in the ward ten minutes after the patient left theatre.

The Committee considered that death could have been avoided if the anaesthetist, or trained recovery room staff, had attended the patient until he was fully conscious. It also felt that high risk patients should not have elective surgery at small inadequately equipped hospitals.

Case 3.

This death occurred in an 89 year old male following a cholecyst-enterostomy and a gastro-enterostomy. The patient's condition was poor prior to surgery.

The Committee found that the conduct of the anaesthetic was satisfactory. It was concerned at the lack of attention in the post operative phase and felt that the anaesthetist should have remained in close contact with his patient.

Case 4.

This 79 year old female had a cardiac arrest during an oesophagectomy. She died one day later.

The Committee considered that the anaesthetist exercised all due care during the anaesthetic and resuscitation.

Case 5.

This 61 year old female had a fatal cardiac arrest during a hemicolectomy. At autopsy an acute coronary artery occlusion was found.

Poor documentation made it difficult for the Committee to comment on this case. There was no evidence that an adequate pre operative investigation had been carried out. The anaesthetic record lacked detail.

Case 6.

This 81 year old male was brought to theatre with a ruptured abdominal aneurysm.

The Committee considered that all due care had been taken with the anaesthetic.

Case 7.

This 10 week old baby with a known ventricular septal defect, died during a herniotomy.

The Committee considered that all due care had been taken with the anaesthetic.

Case 8.

This 22 year old male sustained massive trauma in a motor vehicle accident. He died during laparotomy for a ruptured aorta.

No anaesthetic was given to this patient. The anaesthetist was involved in resuscitation.

Case 9.

This 63 year old female inhaled gastric content during the induction of anaesthesia for a burst abdomen. She died of pulmonary failure five weeks later.

The Committee was disturbed by several features of this case. The anaesthetist met the patient for the first time immediately prior to surgery. Insufficient time was spent in pre operative assessment and resuscitation. The patient had spent the previous week in an intensive care unit recovering from a bowel resection. Despite this she had severe hyponatraemia, hypoproteinaemia, and septicaemia at the time of the second operation. After the inhalation of gastric content, aggressive therapy was not undertaken for twenty-four hours.

Case 10.

This 74 year old male had a tendon transfer on his left wrist under general anaesthesia. At the end of the case the anaesthetist attempted a brachial plexus block. The patient died in the ward four hours after surgery.

The Committee considered that the patient should have been observed closely after the operation, because of the risk of a pneumothorax.

CONGENITAL MALFORMATIONS REGISTER REPORT

Dr. F.J. Stanley and Dr. C. Bower

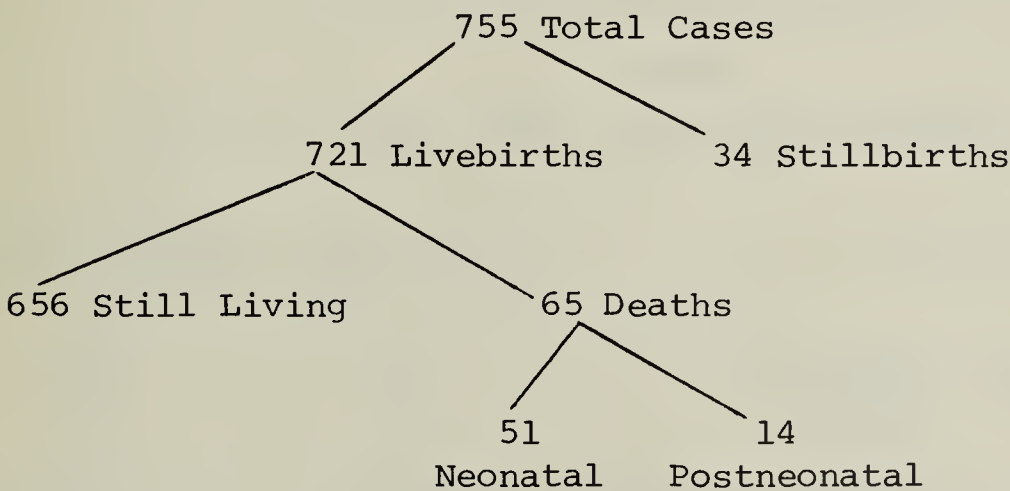
The Western Australian Congenital Malformations Register was established in 1980 with funds from the Federal Department of Health, to collect data on congenital malformations in Western Australia, occurring in children born on or after January 1st, 1980. The basic data sets used are the Midwives Notification of Birth Form, which is filled in on every birth in the State, and the Perinatal Death Certificates. Added to this, voluntary notification on special notification cards is requested from hospital nurseries, Princess Margaret Hospital, child health sisters, special treatment and investigation centres and private practitioners.

An intensive publicity campaign, concentrating on the metropolitan area was conducted during 1980, and this has been extended to rural areas in 1981. Demographic, diagnostic and notification information was coded and computerised, without name. This report summarises the data received by April 1981 on children born from January 1 to December 31, 1980. These data are necessarily incomplete, as malformations in children born in 1980 continue to be diagnosed and notified to the register.

A total of 20,861*births occurred in Western Australia during 1980, and 755 children born in 1980 with congenital malformations were notified to the register (10 of whom were born in other Australian States or overseas) i.e. 3.6% of all babies born in W.A. had a malformation.

*Figure obtained from Australian Bureau of Statistics.

TABLE 1
TOTAL CASES



NOTIFICATIONS

1684 notification cards were received on the 755 cases, some cases having as many as 8 cards. The multiple notifications on each case improved the diagnosis in over 50%, and therefore are very important for accuracy of the register. In 40% of cases the diagnosis was made after the first month of life and so could not be expected to have a midwives notification.

The importance of additional notifiers with regard to ascertainment, as well as accuracy, therefore, is paramount.

TABLE 2
NOTIFICATIONS

Basic Data Sources

Midwives Notification	363
Death Certificates	73

Additional Notifiers

Princess Margaret Hospital	340
Private practitioners	297
Obstetric hospitals	172
Child Health Sisters	167
Genetics, cytogenetics	143
Pathology	70
Other (Irrabeena, Fremantle Hospital, Register staff, etc.)	59

1684

AREA OF RESIDENCE, RACE AND SEX

The distribution of all malformations with respect to area of residence and race mirrors that for total births. The significant excess of males with malformations is noted, and has been observed in other studies of birth defects throughout the world.

TABLE 3
AREA OF RESIDENCE, RACE, SEX

		All Births (20,861)	Congenital Malformations (755)
Area of Residence:	Metro	70%	71%
	Rural	30%	29%
Race:	Non-Aboriginal	95.5%	95%
	Aboriginal	4.5%	5%
			119-Unknown*
Sex:	Male	51%	61%
	Female	49%	39%

*Race was not specified on the notification cards used for the first two months of 1980, accounting for the large number of cases with unknown race. These were excluded from the above calculation of percentages by race.

DIAGNOSES

The diagnostic information was grouped into major and minor categories based on a classification from the Centre for Disease Control in Atlanta.

After the first six months' operation of the register, it was clear that 50% of the cases had single minor defects and a decision was made to exclude most of these, and below is a list of exclusions.

Skin tag	}	Unless multiple or giant (>4cm ²) or requiring treatment
Naevus, angioma, haemangioma, lymphangioma		
Birthmark		
Mongolian Blue Spot		
Clicky hip		
Small ear anomalies		
Undescended testis	}	Unless requiring surgery
Hydrocoele testis		
Umbilical hernia		
Small anomalies of toes		
Two cord vessels		
Postural foot deformity		
Tongue tie		

TABLE 4
DIAGNOSES BY GROUPED CATEGORIES

Single Minor	70	}	10% minor
Multiple Minor	3		
Single major ⁺ / ₋ minor	561	}	90% major
Multiple major ⁺ / ₋ minor	121		
	755		100%

Examples: Minor - poly and syn-dactyly, bifid uvula, large (>4cm²) birthmarks

Major - talipes, congenital dislocation of hip, neural tube defect, chromosome disorders.

For the purposes of this analysis, some defects were coded separately, but in future, each individual defect will be coded according to the 5 digit British Paediatric Association expanded ICD 9 system.

TABLE 5

INCIDENCE OF SELECTED DEFECTS, IN CHILDREN BORN IN W.A.

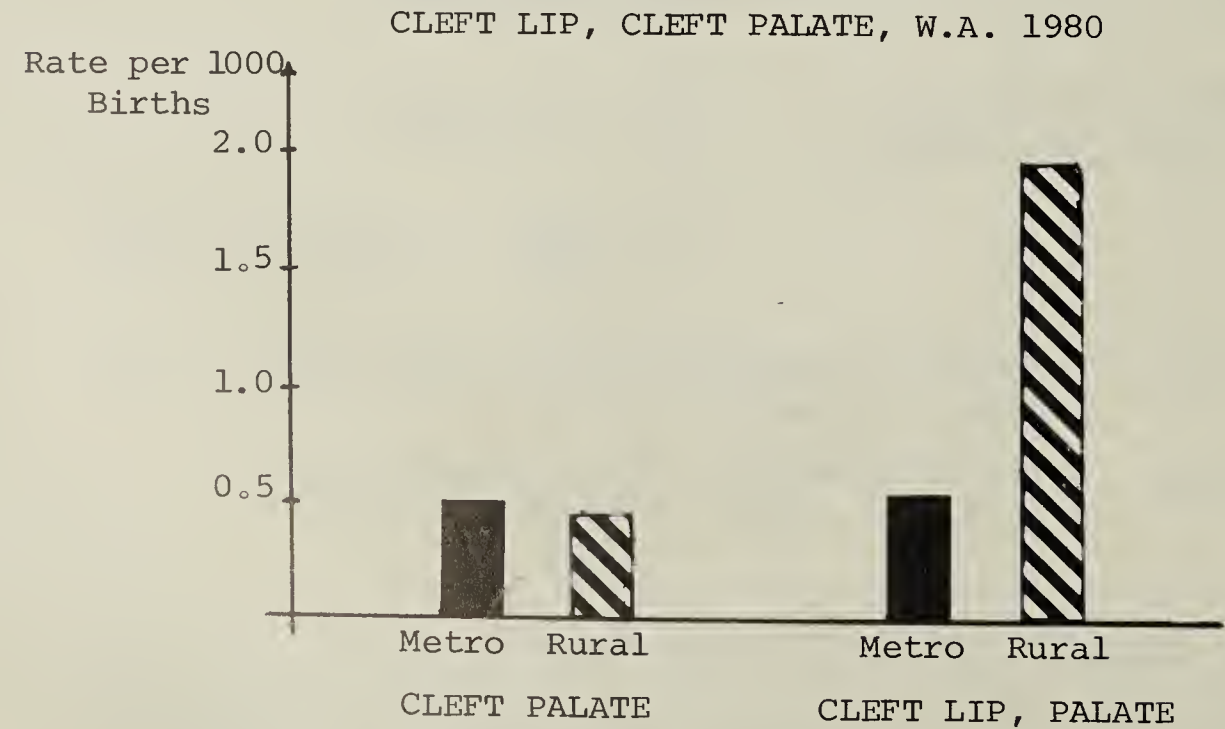
	No.	Rate (per 1000 births)
Total cases born in Western Australia	745*	35.71
Neural tube defects	45	2.16
Cleft lip and palate	40	1.92
Congenital dislocation of hip	78	3.74
Down's Syndrome	22	1.06
Congenital heart defect	119	5.70

*10 children notified to the Register, were born outside W.A., but now reside in the State. These 10 children have been excluded from this table.

One of these defects, facial clefts was looked at in a little more detail.

Of the 42 children with clefts notified to the register, 14 had isolated cleft palate, and 28 had cleft lip or cleft lip and palate. Two of these were born outside W.A. and 8 were associated with recognized syndromes. These 10 cases were excluded from the following analysis.

The rates of clefts per 1000 births to metropolitan dwellers and rural dwellers were calculated and graphed.



The rates for isolated cleft palate are similar in metropolitan and rural areas, but the rate of cleft lip and cleft lip and palate combined, in children of rural dwellers is three times that in children of metropolitan dwellers. While the numbers are small, the difference is statistically significant at the 1% level using a χ^2 analysis, 1.d.f.

At this stage, the cause or causes for this difference must only be conjecture, but an analytic study of this and other aspects of facial clefts is currently being conducted.

DEATHS

In 1980, there were 179 stillbirths in Western Australia, 34 of which (or 19%) had an associated malformation, and 170 neonatal deaths, 51 of which (30%) had a malformation.

Post mortem examination was performed on 23 of the 34 stillbirths, or 68% and on 40 of the 51 neonatal deaths - a rate of 78%. However, it must be remembered that these were babies with obvious defects. The overall rate of necropsy in Western Australia, in 1976-78, for example, was 58% for all neonatal deaths and only 37% for all stillbirths. An increase in these rates would increase the ascertainment of defects and improve the diagnosis, which in turn, would be of value to doctors, parents and genetic counsellors.

CONCLUSION

The West Australian Congenital Malformations Register, the first of its kind in Australia, has been in operation for just over a year, and this report describes the first twelve months' data.

Descriptive and analytic studies of facial clefts, hand deformities, the ultra sound diagnosis of neural tube defects and a suspected cluster of diaphragmatic hernias, are being conducted, using data collected by the register. A case control study by registry staff of neural tube defects is also being planned for 1982.

The usefulness of the register in these and other studies is directly proportional to the completeness and accuracy of the data, which in turn is dependent on registry staff, but most importantly on the enthusiasm and involvement of the notifiers. This register is fortunate to be supported and encouraged by those people involved in the care of children with malformations.

ACKNOWLEDGEMENTS

We are grateful to all the Midwives, Doctors, Community and Child Health sisters and others who have sent in notifications to the Register; to Mr. M.J. Hartfield for help with computing and programming; and to the Department of Public Health for their continued co-operation.

PUBLICATIONS

Seward, Jane F. and Stanley, Fiona J. - The Congenital Malformations Register in Western Australia. Med. J. Aust. 1:218-224, 1981

Bower, C. - Report of the West Australian Congenital Malformations Register. Abstract. Aust. Paed. J., 17(2):137, 1981

Stanley, Fiona J. - Fetotoxic Chemicals and Drugs. Med. J. Aust. 1:688-693, 1981

Bower, C. and Stanley, F.J. - Herbicides and Cleft Lip and Palate. Letter. Lancet, 2:1247, 1981

Stanley, Fiona J. - Neural Tube Defects in Relation to 2,4,5-T Usage. (Letter). Chemistry in Australia, 48(3), 1981

DEPARTMENT OF HEALTH AND MEDICAL SERVICES

HEALTH DIVISION

REVENUE FOR YEAR ENDED 31 DECEMBER 1980

	\$	\$
LICENCES		
Anatomy	470	
Fumigation	466	
Maternity Homes	18	
Poisons Act	21 572	
Radioactive Substances Act	2 040	
Optical Dispensers	25	
Private Hospitals	4 990	
Clean Air Act	<u>18 569</u>	48 150
FEES		
Fish Inspection	10 902	
Meat Inspection	4 629	
Building Inspection	6 314	
Perth Medical Officers	644	
Pest Control Collections	9 894	
Pesticide Registration	20 890	
Septic Tank Plans	<u>36 389</u>	89 662
MISCELLANEOUS		
Other	105 499	
Staff Rents	23	
Recoup of V.D. Costs	332 722	
Recoup of T.B. Costs	840 066	
Busselton Health Centre	6 854	
Mandurah Health Centre	6 234	
Karratha Health Centre	18 346	
South Hedland Health Centre	16 248	
Geraldton Health Centre	32 003	
Kwinana Health Centre	1 730	
Lockridge Health Centre	5 799	
Claremont Health Centre	13 869	
X-Ray Examinations	4 107	
Amalgam Waste	4 202	
W.A. Meat Commission	21 412	
Sale of Publications Health Education	<u>1 076</u>	1 410 190
COMMONWEALTH GRANT		18 140 691
LABORATORIES		
Fees and Services		2 910 660
DENTAL		
Fees		<u>317 983</u>
GRAND TOTAL:		<u><u>\$22 917 336</u></u>

		\$	\$
11.	OTHER HEALTH SERVICES (Cont'd.)		
	Physics Division	99 697	
	V.D. Control	37 319	
	Poliomyelitis	'96	
	Miners X-Rays	25 252	
	Health Services Planning and Research	144 559	
	Poisons Information Centre	16 944	
	Chiropody Services	50 592	
	Food and Nutrition	1 493	
	Ord River Ecological Research	55 244	
	East Pilbara Shire Council Subsidy		
	Appt. Health Surveyor	2 574	
	Research Services	<u>382</u>	924 004
12.	T.B. CONTROL		
	Salaries	630 753	
	Generally	<u>195 642</u>	826 395
13.	MEAT INSPECTION		
	Generally		339 365
14.	EDUCATION SERVICES		
	HEALTH EDUCATION		
	Salaries	180 139	
	Generally	<u>24 094</u>	204 233
	DRUG EDUCATION		
	Salaries	73 539	
	Generally	<u>33 100</u>	106 639
	AUDIO VISUAL		
	Salaries	92 650	
	Generally	<u>30 939</u>	123 589
	LIBRARY SERVICES		
	Salaries	58 926	
	Generally	<u>95 665</u>	154 591
			<u>589 052</u>
	GRAND TOTAL:		<u>\$45 906 413</u>

DEPARTMENT OF HEALTH AND MEDICAL SERVICES

HEALTH DIVISION

EXPENDITURE FOR YEAR ENDED 31 DECEMBER 1980

	\$	\$
1. SALARIES		
Including Administration and other Health Services		3 647 268
2. ADMINISTRATION EXPENSES		453 074
3. PAYROLL TAX		1 436 489
4. GOVERNMENT PRINTER		42 507
5. CHILD HEALTH SERVICES		
Salaries	4 154 462	
Generally	<u>464 425</u>	4 618 887
6. DENTAL HEALTH SERVICES		
Salaries	6 795 872	
Generally	718 839	
Training Centres	134 367	
Therapy Centres	675 335	
Dental Clinics	<u>268 766</u>	8 593 179
7. EPIDEMIOLOGY		
Salaries	252 791	
Generally	<u>115 748</u>	368 539
8. COMMUNITY HEALTH SERVICES		
Salaries	4 516 238	
Generally	<u>2 093 849</u>	6 610 087
9. COMMUNITY HEALTH PROGRAMME		
Salaries	3 005 349	
Generally	<u>3 674 577</u>	6 679 926
10. LABORATORIES		
Salaries	6 822 206	
Generally	<u>3 955 435</u>	10 777 641
11. OTHER HEALTH SERVICES		
Health Services Centre	24 448	
Pharmaceutical Services	16 833	
Statistics	123 924	
Health Surveyors and Inspection	96 739	
Pest Control	11 971	
Occupational Health	72 219	
Clean Air	123 287	
Abatement of Noise	19 364	
Radioactive Substances	1 067	

